THE TANJORE MAHARAJA SERFOGI'S SARASWATI MAHAL.
3170

ASIATIC RESEARCHES;

OR,

TRANSACTIONS

OF THE

SOCIETY IN BENGAL,

&c. &c.

Serfogee Rajah 1829

ASIATICK RESEARCHES;

OR,

TRANSACTIONS

OF THE

SOCIETY INSTITUTED IN BENGAL,

FOR INQUIRING INTO THE

HISTORY AND ANTIQUITIES,

THE

ARTS, SCIENCES, AND LITERATURE,

OF

ASIA.

3170

VOLUME THE FOURTH.

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1801.

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL.

ADVERTISEMENT.

THE unfortunate death of Sir *William Jones*, on the 27th of *April*, 1794, having deprived the Society of their Founder and Prefident, a meeting of the Members was convened on the 1ft of *May* following, when it was unanimoufly agreed to appoint a Committee, confifting of Sir *Robert Chambers*, Mr. Juftice *Hyde*, Colonel *John Murray*, *John Briston*, and *Thomas Graham*, Efquires, to wait on Sir *John Shore*, and, in the Name of the Society, requeft his acceptance of the office of their Prefident. With this requeft he, in terms highly flattering to the Society, agreed to comply; and on the 22d of *May*, 1794, took his feat as Prefident, and delivered the Difcourfe, No. 12, of this Volume.

EDMUND MORRIS, *Secretary*.

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I.

THE TENTH

ANNIVERSARY DISCOURSE,

DELIVERED 28 FEBRUARY, 1793,

BY THE PRESIDENT,

ON ASIATIC HISTORY, CIVIL AND NATURAL.

BEFORE our entrance, Gentlemen, into the Diſquiſition promiſed at the cloſe of my Ninth Annual Diſcourſe, *on the particular Advantages which may be derived from our concurrent Reſearches in Aſia,* it ſeems neceſſary to fix, with preciſion, the ſenſe in which we mean to ſpeak of *advantage* or *utility*. Now, as we have deſcribed the five Aſiatic regions on their largeſt ſcale, and have expanded our conceptions in proportion to the magnitude of that wide field, we ſhould uſe thoſe words which comprehend the fruit of all our inquiries, in their moſt extenſive acceptation;

including not only the ſolid conveniences and comforts of ſocial life, but its elegances and innocent pleaſures, and even the gratification of a natural and laudable curioſity; for, though labour be clearly the lot of man in this world, yet, in the midſt of his moſt active exertions, he cannot but feel the ſubſtantial benefit of every liberal amuſement which may lull his paſſions to reſt, and afford him a ſort of repoſe without the pain of total inaction, and the real uſefulneſs of every purſuit which may enlarge and diverſify his ideas, without interfering with the principal objects of his civil ſtation or œconomical duties; nor ſhould we wholly exclude even the trivial and worldly ſenſe of *utility*, which too many conſider as merely ſynonymous with *lucre*, but ſhould reckon among uſeful objects thoſe practical, and by no means illiberal arts, which may eventually conduce both to national and to private emolument. With a view then to *advantages* thus explained, let us examine every point in the whole circle of arts and ſciences, according to the received order of their dependence on the faculties of the mind, their mutual connexion, and the different ſubjects with which they are converſant: our inquiries indeed, of which Nature and Man are the primary objects, muſt of courſe be chiefly *Hiſtorical*; but ſince we propoſe to inveſtigate the *actions* of the ſeveral

Aſiatic nations, together with their reſpective progreſs in *ſcience* and *art*, we may arrange our inveſtigations under the ſame three heads to which our European analyſis have ingeniouſly reduced all the branches of human knowledge; and my preſent Addreſs to the Society ſhall be confined to Hiſtory, civil and natural, or the obſervation and remembrance of *mere facts* independently of ratiocination, which belongs to philoſophy; or of *imitations* and *ſubſtitutions*, which are the province of art.

Were a ſuperior created intelligence to delineate a map of general knowledge (excluſively of that ſublime and ſtupendous theology, which himſelf could only hope humbly to know by an infinite approximation) he would probably begin by traceing with Newton the ſyſtem of the univerſe, in which he would aſſign the true place to our little globe; and having enumerated its various inhabitants, contents, and productions, would proceed to man in his natural ſtation among animals, exhibiting a detail of all the knowledge attained or attainable by the human race; and thus obſerving perhaps the ſame order in which he had before deſcribed other beings in other inhabited worlds; but though Bacon ſeems to have had a ſimilar reaſon for placing the Hiſtory of Nature before that of Man, or the whole before one of its parts,

yet, conſiſtently with our chief object already mentioned, we may properly begin with the Civil Hiſtory of the Five Aſiatic Nations, which neceſſarily comprizes their geography, or a deſcription of the places where they have acted, and their aſtronomy, which may enable us to fix with ſome accuracy the time of their actions: we ſhall thence be led to the hiſtory of ſuch other animals, of ſuch minerals, and of ſuch vegetables as they may be ſuppoſed to have found in their ſeveral migrations and ſettlements, and ſhall end with the uſes to which they have applied, or may apply, the rich aſſemblage of natural ſubſtances.

I. In the firſt place, we cannot ſurely deem it an inconſiderable advantage that all our hiſtorical reſearches have confirmed the Moſaic accounts of the primitive world; and our teſtimony on that ſubject ought to have the greater weight, becauſe, if the reſult of our obſervations had been totally different, we ſhould nevertheleſs have publiſhed them, not indeed with equal pleaſure, but with equal confidence; for *truth is mighty, and*, whatever be its conſequences, *muſt always prevail:* but, independently of our intereſt in corroborating the multiplied evidences of revealed religion, we could ſcarce gratify our minds with a more uſeful and rational entertainment than the contemplation

of thoſe wonderful revolutions in kingdoms and ſtates, which have happened within little more than four thouſand years; revolutions almoſt as fully demonſtrative of an all-ruling Providence as the ſtructure of the univerſe, and the final cauſes which are diſcernible in its whole extent, and even in its minuteſt parts. Figure to your imaginations a moving picture of that eventful period, or rather a ſucceſſion of crowded ſcenes rapidly changed. Three families migrate in different courſes from one region, and, in about four centuries, eſtabliſh very diſtant governments and various modes of ſociety: Egyptians, Indians, Goths, Phenicians, Celts, Greeks, Latians, Chineſe, Peruvians, Mexicans, all ſprung from the ſame immediate ſtem, appear to ſtart nearly at one time, and occupy at length thoſe countries, to which they have given, or from which they have derived, their names. In twelve or thirteen hundred years more, the Greeks overrun the land of their forefathers, invade India, conquer Egypt, and aim at univerſal dominion; but the Romans appropriate to themſelves the whole empire of Greece, and carry their arms into Britain, of which they ſpeak with haughty contempt. The Goths, in the fulneſs of time, break to pieces the unwieldly Coloſſus of Roman power, and ſeize on the whole of Britain, except its wild mountains;

but even thoſe wilds become ſubject to other invaders of the ſame Gothic lineage. During all thoſe tranſactions the Arabs poſſeſs both coaſts of the Red Sea, ſubdue the old ſeat of their firſt progenitors, and extend their conqueſts, on one ſide, through Africa, into Europe itſelf; on another, beyond the borders of India, part of which they annex to their flouriſhing empire. In the ſame interval the Tartars, widely diffuſed over the reſt of the globe, ſwarm in the north-eaſt, whence they ruſh to complete the reduction of Conſtantine's beautiful domains, to ſubjugate China, to raiſe in theſe Indian realms a dynaſty ſplendid and powerful, and to ravage, like the two other families, the devoted regions of Iran. By this time the Mexicans and Peruvians, with many races of adventurers variouſly intermixed, have peopled the continent and iſles of America, which the Spaniards, having reſtored their old government in Europe, diſcover and in part overcome: but a colony from Britain, of which Cicero ignorantly declared that it contained nothing valuable, obtain the poſſeſſion, and finally the ſovereign dominion of extenſive American diſtricts; whilſt other Britiſh ſubjects acquire a ſubordinate empire in the fineſt provinces of India, which the victorious troops of Alexander were unwilling to attack. This outline of human tranſactions, as

far as it includes the limits of Aſia, we can only hope to fill up to ſtrengthen, and to colour by the help of Aſiatic literature; for in hiſtory, as in law, we muſt not follow ſtreams when we may inveſtigate fountains, nor admit any ſecondary proof where primary evidence is attainable: I ſhould, nevertheleſs, make a bad return for your indulgent attention, were I to repeat a dry liſt of all the Muſſelman hiſtorians whoſe works are preſerved in Arabic, Perſian, and Turkiſh, or expatiate on the hiſtories and medals of China and Japan, which may in time be acceſſible to Members of our Society, and from which alone we can expect information concerning the ancient ſtate of the Tartars; but on the hiſtory of India, which we naturally conſider as the centre of our enquiries, it may not be ſuperfluous to preſent you with a few particular obſervations.

Our knowledge of Civil Aſiatic Hiſtory (I always except that of the Hebrews) exhibits a ſhort evening twilight in the venerable introduction to the firſt book of Moſes, followed by a gloomy night, in which different watches are faintly diſcernible, and at length we ſee a dawn ſucceeded by a ſun-riſe, more or leſs early according to the diverſity of regions. That no Hindu nation, but the Caſhmirians, have left us regular hiſtories in

their ancient language, we must ever lament; but from the Sanscrit literature, which our country has the honour of having unveiled, we may still collect some rays of historical truth, though time and a series of revolutions have obscured that light which we might reasonably have expected from so diligent and ingenious a people. The numerous Puranas and Itihasas, or poems mythological and heroic, are completely in our power; and from them we may recover some disfigured but valuable pictures of ancient manners and governments; while the popular tales of the Hindus, in prose and in verse, contain fragments of history; and even in their dramas we may find as many real characters and events as a future age might find in our own plays, if all histories of England were, like those of India, to be irrecoverably lost. For example, A most beautiful poem by Somadeva, comprising a very long chain of instructive and agreeable stories, begins with the famed revolution at Pataliputra, by the murder of king Nanda with his eight sons, and the usurpation of Chandragupta; and the same revolution is the subject of a tragedy in Sanscrit, entitled the Coronation of Chandra, the abbreviated name of that able and adventurous usurper. From these once concealed, but now accessible compositions, we are enabled to exhibit a more

accurate ſketch of old Indian hiſtory than the world has yet ſeen, eſpecially with the aid of well-atteſted obſervations on the places of the colures. It is now clearly proved, that the firſt Purana contains an account of the deluge; between which and the Mohammedan conqueſts the hiſtory of genuine Hindu government muſt of courſe be comprehended: but we know from an arrangement of the ſeaſons in the aſtronomical work of Paraſara, that the war of the Pandavas could not have happened earlier than the cloſe of the twelfth century before Chriſt; and Seleucus muſt, therefore, have reigned about nine centuries after that war. Now the age of Vicramaditya is given; and, if we can fix on an Indian prince contemporary with Seleucus, we ſhall have three given points in the line of time between Rama, or the firſt Indian colony, and Chandrabija, the laſt Hindu monarch, who reigned in Behar; ſo that only eight hundred or a thouſand years will remain almoſt wholly dark; and they muſt have been employed in raiſing empires or ſtates, in framing laws, improving languages and arts, and in obſerving the apparent motions of the celeſtial bodies. A Sanſcrit hiſtory of the celebrated Vicramaditya was inſpected at Benares by a Pandit, who would not have deceived me, and could not himſelf have been deceived;

but the owner of the book is dead, and his family dispersed; nor have my friends in that city been able, with all their exertions, to procure a copy of it. As to the Mogul conquests, with which modern Indian history begins, we have ample accounts of them in Persian, from Ali of Yezd, and the translations of Turkish books composed even by some of the conquerors, to Ghulam Husain, whom many of us personally know, and whose impartiality deserves the highest applause, though his unrewarded merit will give no encouragement to other contemporary historians, who, to use his own phrase in a letter to myself, may, like him, consider plain truth as the beauty of historical composition. From all these materials, and from these alone, a perfect history of India (if a mere compilation, however elegant, could deserve such a title) might be collected by any studious man who had a competent knowledge of Sanscrit, Persian, and Arabic; but even in the work of a writer so qualified, we could only give absolute credence to the general outline; for, while the abstract sciences are all truth, and the fine arts all fiction, we cannot but own, that, in the details of history, truth and fiction are so blended as to be scarce distinguishable.

The practical uſe of hiſtory, in affording particular examples of civil and military wiſdom, has been greatly exaggerated; but principles of action may certainly be collected from it; and even the narrative of wars and revolutions may ſerve as a leſſon to nations, and an admonition to ſovereigns. A deſire, indeed, of knowing paſt events, while the future cannot be known, and a view of the preſent, gives often more pain than delight, ſeems natural to the human mind: and a happy propenſity would it be, if every reader of hiſtory would open his eyes to ſome very important corollaries, which flow from the whole extent of it. He could not but remark the conſtant effect of deſpotiſm in benumbing and debaſing all thoſe faculties which diſtinguiſh men from the herd that grazes; and to that cauſe he would impute the decided inferiority of moſt Aſiatic nations, ancient and modern, to thoſe in Europe who are bleſt with happier governments; he would ſee the Arabs riſing to glory, while they adhered to the free maxims of their bold anceſtors, and ſinking to miſery from the moment when thoſe maxims were abandoned. On the other hand, he would obſerve with regret, that ſuch republican governments as tend to produce virtue and happineſs, cannot in their nature be permanent, but are generally ſucceeded by oligar-

chies, which no good man would wiſh to be durable. He would then, like the king of Lydia, remember Solon, the wiſeſt, braveſt, and moſt accompliſhed of men, who aſſerts in four nervous lines, that " as hail and ſnow, which mar the " labours of huſbandmen, proceed from elevated " clouds, and, as the deſtructive thunderbolt fol- " lows the brilliant flaſh, thus is a free ſtate ruin- " ed by men exalted in power and ſplendid in " wealth, while the people, from groſs ignorance, " chuſe rather to become the ſlaves of one tyrant, " that they may eſcape from the domination " of many, than to preſerve themſelves from ty- " ranny of any kind by their union and their vir- " tues." Since, therefore, no unmixed form of government could both deſerve permanence and enjoy it, and ſince changes, even from the worſt to the beſt, are always attended with much temporary m iſchief, he would fix on ourBritiſh conſtitution (I mean our public law, not the actual ſtate of things in any given period) as the beſt form ever eſtabliſhed, though we can only make diſtant approaches to its theoretical perfection. In theſe Indian territories, which Providence has thrown into the arms of Britain for their protection and welfare, the religion, manners, and laws of the natives preclude even the idea of political freedom; but their hiſtories may poſſibly ſuggeſt

hints for their profperity, while our country derives effential benefit from the diligence of a placid and fubmiffive people, who multiply with fuch increafe, even after the ravages of famine, that in one collectorfhip out of twenty-four, and that by no means the largeft or beft cultivated (I mean Crifhna-nagar) there have lately been found, by an actual enumeration, a million and three hundred thoufand native inhabitants; whence it fhould feem, that in all India there cannot be fewer than thirty millions of black Britifh fubjects.

Let us proceed to geography and chronology, without which hiftory would be no certain guide, but would refemble a kindled vapour without either a fettled place or a fteady light. For a reafon before intimated, I fhall not name the various cofmographical books which are extant in Arabic and Perfian, nor give an account of thofe which the Turks have beautifully printed in their own improved language, but fhall expatiate a little on the geography and aftronomy of India; having firft obferved generally, that all the Afiatic nations muft be far better acquainted with their feveral countries than mere European fcholars and travellers; that, confequently, we muft learn their geography from their own writings:

and that, by collating many copies of the ſame work, we may correct blunders of tranſcribers in tables, names, and deſcriptions.

Geography, aſtronomy, and chronology have, in this part of Aſia, ſhared the fate of authentic hiſtory; and, like that, have been ſo maſked and bedecked in the fantaſtic robes of mythology and metaphor, that the real ſyſtem of Indian philoſophers and mathematicians can ſcarce be diſtinguiſhed: an accurate knowledge of Sanſcrit and a confidential intercourſe with learned Brahmens, are the only means of ſeparating truth from fable; and we may expect the moſt important diſcoveries from two of our members; concerning whom it may be ſafely aſſerted, that if our Society ſhould have produced no other advantage than the invitation given to them for the public diſplay of their talents, we ſhould have a claim to the thanks of our country and of all Europe. Lieutenant Wilford has exhibited an intereſting ſpecimen of the geographical knowledge deducible from the Puranas, and will in time preſent you with ſo complete a treatiſe on the ancient world known to the Hindus, that the light acquired by the Greeks will appear but a glimmering in compariſon of that which he will diffuſe; while Mr. Davis, who has given us a diſtinct idea of Indian

computations and cycles, and aſcertained the place of the colures at a time of great importance in hiſtory, will hereafter diſcloſe the ſyſtems of Hindu aſtronomers, from Nared and Paraſar to Meya, Varahamihir, and Bhaſcar; and will ſoon, I truſt, lay before you a perfect delineation of all the Indian aſteriſms in both hemiſpheres, where you will perceive ſo ſtrong a general reſemblance to the conſtellations of the Greeks, as to prove that the two ſyſtems were originally one and the ſame, yet with ſuch a diverſity in parts, as to ſhow inconteſtibly, that neither ſyſtem was copied from the other; whence it will follow, that they muſt have had ſome common ſource.

The juriſprudence of the Hindus and Arabs being the field which I have choſen for my peculiar toil, you cannot expect that I ſhould greatly enlarge your collection of hiſtorical knowledge; but I may be able to offer you ſome occaſional tribute; and I cannot help mentioning a diſcovery which accident threw in my way, though my proofs muſt be reſerved for an eſſay which I have deſtined for the fourth volume of your Tranſactions. To fix the ſituation of that Palybothra (for there may have been ſeveral of the name) which was viſited and deſcribed by Megaſthenes, had always appeared a very difficult problem; for though it could

not have been Prayaga, where no ancient metropolis ever ſtood, nor Canyacubja, which has no epithet at all reſembling the word uſed by the Greeks; nor Gaur, otherwiſe called Lacſhmanavati, which all know to be a town comparatively modern, yet we could not confidently decide that it was Pataliputra, though names and moſt circumſtances nearly correſpond, becauſe that renowned capital extended from the confluence of the Sone and the Ganges to the ſcite of Patna, while Palibothra ſtood at the junction of the Ganges and Erannoboas, which the accurate M. D'Anville had pronounced to be the Yamuna; but this only difficulty was removed, when I found in a claſſical Sancrit book, near 2000 years old, that Hiranyabahu, or golden-armed, which the Greeks changed into Erannoboas, or the river with a lovely murmur, was in fact another name for the Sona itſelf; though Megaſthenes, from ignorance or inattention, has named them ſeparately. This diſcovery led to another of greater moment; for Chandragupta, who, from a military adventurer, became, like Sandracottus, the ſovereign of Upper Hinduſtan, actually fixed the ſeat of his empire at Pataliputra, where he received ambaſſadors from foreign princes; and was no other than that very Sandracottus who concluded a treaty with Seleucus Nicator; ſo that we have

ſolved another problem, to which we before alluded, and may in round numbers conſider the twelve and three hundredth years before Chriſt, as two certain epochs between Rama, who conquered Silan a few centuries after the flood, and Vicramaditya, who died at Ujjayini fifty-ſeven years before the beginning of our era.

II. Since theſe diſcuſſions would lead us too far, I proceed to the Hiſtory of Nature, diſtinguiſhed, for our preſent purpoſe, from that of Man; and divided into that of other animals who inhabit this globe, of the mineral ſubſtances which it contains, and of the vegetables which ſo luxuriantly and ſo beautifully adorn it.

1. Could the figure, inſtincts, and qualities of birds, beaſts, inſects, reptiles, and fiſhes be aſcertained, either on the plan of Buffon, or on that of Linnæus, without giving pain to the objects of our examination, few ſtudies would afford us more ſolid inſtruction, or more exquiſite delight; but I never could learn by what right, nor conceive with what feelings a naturaliſt can occaſion the miſery of an innocent bird, and leave its young, perhaps, to periſh in a cold neſt, becauſe it has gay plumage, and has never been accurately delineated; or deprive even a butterfly of its natural enjoyments, becauſe it has the misfortune

to be rare or beautiful; nor ſhall I ever forget the couplet of Firdauſi, for which Sadi, who cites it with applauſe, pours bleſſings on his departed ſpirit:—

> Ah! ſpare yon emmet, rich in hoarded grain;
> He lives with pleaſure, and he dies with pain.

This may be only a confeſſion of weakneſs, and it certainly is not meant as a boaſt of peculiar ſenſibility; but whatever name may be given to my opinion, it has ſuch an effect on my conduct, that I never would ſuffer the Cocila, whoſe wild native wood-notes announce the approach of ſpring, to be caught in my garden, for the ſake of comparing it with Buffon's deſcription; though I have often examined the domeſtic and engaging Mayana, which bids us good-morrow at our windows, and expects, as its reward, little more than ſecurity: even when a fine young Manis or Pangolin was brought me, againſt my wiſh, from the mountains, I ſolicited his reſtoration to his beloved rocks, becauſe I found it impoſſible to preſerve him in comfort at a diſtance from them. There are ſeveral treatiſes on Animals in Arabia, and very particular accounts of them in Chineſe, with elegant outlines of their external appearance; but I met with nothing valuable concerning them in Perſian, except what may be gleaned from the

medical dictionaries; nor have I yet seen a book in Sanscrit that expressly treats of them. On the whole, though rare animals may be found in all Asia, yet I can only recommend an examination of them with this condition, that they be left, as much as possible, in a state of natural freedom; or made as happy as possible, if it be necessary to keep them confined.

2. The History of Minerals, to which no such objection can be made, is extremely simple and easy, if we merely consider their exterior look and configuration, and their visible texture; but the analysis of their internal properties belongs particularly to the sublime researches of Chemistry, on which we may hope to find useful disquisitions in Sanscrit, since the old Hindus unquestionably applied themselves to that enchanting study; and even from their treatises on alchemy we may possibly collect the results of actual experiment, as their ancient astrological works have preserved many valuable facts relating to the Indian sphere and the precession of the equinox. Both in Persian and Sanscrit, there are books on metals and minerals, particularly on gems, which the Hindu philosophers considered (with an exception of the diamond) as varieties of one crystalline substance, either simple or compound: but we must not expect from the chemists of Asia those beautiful exam-

ples of analyſis which have but lately been diſplayed in the laboratories of Europe.

3. We now come to Botany, the lovelieſt and moſt copious diviſion in the hiſtory of nature; and all diſputes on the comparative merit of ſyſtems being at length, I hope, condemned to one perpetual night of undiſturbed ſlumber, we cannot employ our leiſure more delightfully than in deſcribing all new Aſiatic plants in the Linnæan ſtyle and method, or in correcting the deſcriptions of thoſe already known, but of which dry ſpecimens only, or drawings, can have been ſeen by moſt European botaniſts. In this part of natural hiſtory we have an ample field yet unexplored; for, though many plants of Arabia have been made known by Garcias, Proſper Alpinus, and Forſkoel; of Perſia, by Garcin; of Tartary, by Gmelin and Pallas; of China and Japan, by Kœmpfer, Oſbeck, and Thunberg; of India, by Rheede and Rumphius, the two Burmans, and the much lamented Kœnig, yet none of thoſe naturaliſts were deeply verſed in the literature of the ſeveral countries from which their vegetable treaſures had been procured; and the numerous works in Sanſcrit on medical ſubſtances, and chiefly on plants, have never been inſpected, or never at leaſt underſtood, by any European at-

tached to the ſtudy of nature. Until the garden of the India Company ſhall be fully ſtored (as it will be, no doubt, in due time) with Arabian, Perſian, and Chineſe plants, we may well be ſatisfied with examining the native flowers of our own provinces; but unleſs we can diſcover the Sanſcrit names of all celebrated vegetables, we ſhall neither comprehend the alluſions which Indian Poets perpetually make to them, nor (what is far worſe) be able to find accounts of their tried virtues in the writings of Indian phyſicians; and (what is worſt of all) we ſhall miſs an opportunity, which never again may preſent itſelf; for the Pandits themſelves have almoſt wholly forgotten their ancient appellations of particular plants: and, with all my pains, I have not yet aſcertained more than two hundred out of twice that number, which are named in their medical or poetical compoſitions. It is much to be deplored, that the illuſtrious Van Rheede had no acquaintance with Sanſcrit, which even his three Brahmens, who compoſed the ſhort preface engraved in that language, appear to have underſtood very imperfectly, and certainly wrote with diſgraceful inaccuracy. In all his twelve volumes I recollect only Bunarnava, in which the Nagari letters are tolerably right; the Hindu words in Arabian characters are ſhamefully incorrect; and

the Malabar, I am credibly informed, is as bad as the reſt. His delineations, indeed, are in general excellent; and though Linnæus himſelf could not extract from his written deſcriptions the natural character of every plant in the collection, yet we ſhall be able, I hope, to deſcribe them all from the life, and to add a conſiderable number of new ſpecies, if not of new genera, which Rheede, with all his noble exertions could never procure. Such of our learned members as profeſs medicine, will, no doubt, cheerfully aſſiſt in theſe reſearches, either by their own obſervations, when they have leiſure to make any, or by communications from other obſervers among their acquaintance, who may reſide in different parts of the country: and the mention of their art leads me to the various *uſes* of natural ſubſtances, in the three kingdoms or claſſes to which they are generally reduced.

III. You cannot but have remarked, that almoſt all the ſciences, as the French call them, which are diſtinguiſhed by Greek names, and arranged under the head of *Philoſophy*, belong for the moſt part to Hiſtory; ſuch as philology, chemiſtry, phyſic, anatomy, and even metaphyſics, when we barely relate the phenomena of the human mind; for, in all branches of knowledge, we are only hiſtorians when we announce facts;

and philosophers only when we reason on them: the same may be confidently said of law and of medicine, the first of which belongs principally to Civil, and the second chiefly to Natural History. Here, therefore, I speak of medicine as far only as it is grounded on experiment; and, without believing implicitly what Arabs, Persians, Chinese, or Hindus may have written on the virtues of medicinal subjects, we may, surely, hope to find in their writings what our own experiments may confirm or disprove, and what might never have occurred to us without such intimations.

Europeans enumerate more than two hundred and fifty mechanical arts, by which the productions of nature may be variously prepared for the convenience and ornament of life; and, though the Silpasastra reduces them to sixty-four, yet Abulfazl had been assured that the Hindus reckoned three hundred arts and sciences: now, their sciences being comparatively few, we may conclude that they anciently practised at least as many useful arts as ourselves. Several Pandits have informed me, that the treatises on art, which they call Upavedas, and believe to have been inspired, are not so entirely lost but that considerable fragments of them may be found at Benares; and they certainly possess many popular, but ancient

works on that intereſting ſubject. The manufactures of ſugar and indigo have been well known in theſe provinces for more than two thouſand years; and we cannot entertain a doubt that their Sanſcrit books on dying and metallurgy, contain very curious facts, which might, indeed, be diſcovered by accident, in a long courſe of years, but which we may ſoon bring to light, by the help of Indian literature, for the benefit of manufacturers and artiſts, and conſequently of our nation, who are intereſted in their proſperity. Diſcoveries of the ſame kind might be collected from the writings of other Aſiatic nations, eſpecially of the Chineſe; but, though Perſian, Arabic, Turkiſh, and Sanſcrit are languages now ſo acceſſible, that, in order to attain a ſufficient knowledge of them, little more ſeems required than a ſtrong inclination to learn them, yet the ſuppoſed number and intricacy of the Chineſe characters have deterred our moſt diligent ſtudents from attempting to find their way through ſo vaſt a labyrinth. It is certain, however, that the difficulty has been magnified beyond the truth; for the perſpicuous grammar by M. Fourmont, together with a copious dictionary, which I poſſeſs, in Chineſe and Latin, would enable any man who pleaſed, to compare the original works of Confucius, which are eaſily procured, with the

literal tranſlation of them by Couplet; and having made that firſt ſtep with attention, he would probably find, that he had traverſed at leaſt half of his career. But I ſhould be led beyond the limits aſſigned to me on this occaſion, if I were to expatiate farther on the hiſtorical diviſion of the knowledge compriſed in the literature of Aſia; and I muſt poſtpone till next year my remarks on Aſiatic Philoſophy, and on thoſe arts which depend on imagination; promiſing you with confidence, that in the courſe of the preſent year your inquiries into the civil and natural hiſtory of this eaſtern world, will be greatly promoted by the learned labours of many among our aſſociates and correſpondents.

THE TANJORE MAHARAJA SERFOJI'S SARASVATI MAHAL

ASIATIC RESEARCHES.

ON
THREE NATURAL PRODUCTIONS
OF
SUMATRA.

BY JOHN MACDONALD, ESQ.

ON THE CAMPHOR OF SUMATRA.

IN anſwer to ſome queſtions put to me by the Preſident of the *Aſiatic* Society reſpecting camphor-oil, I have the pleaſure of giving the ſolution contained in the following ſhort account:—Camphor-oil, one of the eſſential oils, is actually camphor, before the operations of nature on it have reduced it to the concrete form in which it is found in the tree. When Mr. *Marſden* compoſed his juſtly-admired Hiſtory of *Sumatra*, the prevalent opinion on this ſubject was, that the oil and the concreted camphor were never found in the ſame tree. I have the authority of a gentleman, Lieutenant *Lewis*, well informed on this ſubject, from a reſidence of many years in the country producing the camphor, to differ from that generally accurate author, by ſaying, that he has ſeen a tree three quarters of a mile from the ſea, near *Tappanoolly*, from which three *catties* (above

three pounds) of camphor, and at the ſame time, near two gallons of oil, had been procured. If a tree be old, and yield oil plentifully, the natives eſteem theſe two circumſtances ſure indications of its containing a conſiderable quantity of champhor. Mr. *Macquer*, in his chemical dictionary, has remarked, that the nitrous acid diſſolves camphor without commotion, that the ſolution is clear and limpid, and that it is called Camphor-Oil. This affords a proof that the formed camphor is produced from the oil by a natural operation of compoſition, the decompoſition by means of the above ſolvent reducing the ſubſtance to its primary ſtate, previous to concretion. The *Achineſe* are reckoned the beſt judges of camphor; and the oil they collect undergoes a proceſs by diſtillation, leaving a reſiduum of inferior camphor. Trees of a certain age only yield camphor. It would ſeem that a certain time is requiſite for maturing the oil to that ſtate, when its contained camphor becomes fit for being concreted by the heat of the ſun acting on the tree and ſoil. The camphor-tree is one of the *Enneandria Monogynia* of *Linnæus*, and differs in a ſmall variation in the form of the leaf from the *Arbor Camphorifera Japonica, foliis laurinis, fructu parvo, calyce breviſſimo.* The tree very much reſembles the Bay in leaves. The trunk is thick; the bark of a browniſh appearance; and the ramification ſtrong, cloſe, and extended. It is fond of a rich red loam, tending to a blackiſh clay, mixed with a crumbling ſtone of the colour of marl. It grows principally on the N. W. ſide of *Sumatra*, from the line 3° N. nearly. The wood is uſeful for domeſtic purpoſes, being ſoft and eaſily worked. It is by many imagined, that camphor is produced by a chemical proceſs. This is a miſtaken idea, farther than regards the inferior kind ariſing from the diſtillation of the oil. I ſhall give a brief account of the mode of obtaining and

preparing it, as practiſed by the natives of *Sumatra*, from the time of the eſtabliſhment of the *Engliſh* on the iſland. The *Sumatrans*, previous to their ſetting out in queſt of camphor, aſſemble on the confines of the country they intend exploring, and diſcharge a variety of religious duties and ceremonies, calculated, in their opinion, to promote the future ſucceſs of their undertaking. They enter the woods, and, from experience, ſoon diſtinguiſh ſuch trees as contain camphor. They pierce them; and if they yield oil plentifully, it is preſumed they contain concreted camphor, which is found in ſmall whitiſh flakes, ſituated perpendicularly, in irregular veins, in and near the centres of the trees. The tree is cut down, divided into junks, and carefully diveſted of its camphor. When the oil has been drawn off from young trees, the camphor which they afterwards afford is of a leſs valuable nature, and is termed *belly* or *foot* camphor, in proportion to the degree of affinity it bears to *head*, or the beſt ſort. When brought for ſale, it is repeatedly ſoaked and waſhed in ſoapy water, to ſeparate from it all heterogeneous and ſandy particles that may have adhered to it. When clean, it will ſink in water, and be of a white, gloſſy, ſmooth appearance, tending to tranſparency. After it has been waſhed, it is paſſed through three ſieves of differing textures, ſo as to be divided into *head*, *belly*, and *foot* camphor: certain proportions of each compoſe the cheſts made up for the *China* market, where they are ſold for 350l. ſterling, nearly. The *capoor** (a word of *Arabic* origin) *matee*, or dead camphor, is carefully ſeparated from the three diviſions, by an acuteneſs of diſtinction, acquired by the eye and hand from habit and attention, and, being mixed with the imperfect

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* *Cáfúr* in *Arabic*, and *Carpúra* in *Sanſcrit*.

kind mentioned above, is pounded in a mortar and diſtributed among proportional quantities of foot camphor. This *capoor-matee* is ſometimes procured by boiling down the thickeſt part of the oil, or by taking the ſediment of the beſt oil, after it has ſettled at leaſt twenty-four hours. Camphor-oil is found to be a ſovereign remedy for ſtrains, bruiſes, and other external pains, from its penetrating quality in entering the pores, and gently agitating the affected parts, ſo as to quicken the ſtagnated circulation. The internal, anodyne and diaphoretic, and the external, antiſpaſmodic and ſedative virtues of camphor are well known. The oil is found to poſſeſs theſe in a certain degree, and to be uſeful in removing the painful ſpaſms of the nerves and tendons, by diſſipating the ſurrounding acrid humours. When the oil is uſed, it muſt be formed into a liniment, as it would alone occaſion pain from its ſtrength. The oil applied to ſores on horſes has been found very beneficial. In this caſe it ought to be mixed with the juice of the tobacco. *Sumatra* affords annually from fifteen to twenty *peculs* (of $133\frac{1}{3}$ pounds each) of camphor, and more oil than there is at preſent a demand for. The *Chineſe* purchaſe it; and it is not clearly aſcertained whether they uſe it all in *China*, or make a factitious ſpecies of it, by admixture of *Japaneſe* camphor, for the *Europe* market: the latter is generally ſuppoſed. It is highly probable, that the price of camphor will, in proceſs of time, riſe to an enormous degree, as one tree in three hundred is not found to contain camphor, and, when found, is immediately cut down; in conſequence of which, the plant muſt ſoon become ſcarce, and the produce proportionably dear. It is to be hoped that the oil will, in this event, be found by the faculty to poſſeſs all the uſeful qualities of this valuable medicine. I have the ſatisfaction of accompanying this paper with a ſpeci-

men, though a ſmall one, of the camphor-wood, with a ſmall quantity of the ſubſtance in it, the reſt having evaporated from length of time. If this account ſhould afford any information to the Preſident and Members of the *Aſiatic* Society, my intention will be fully anſwered.

ON

THE CORAL

OF

SUMATRA.

IF this paper ſhould be deemed worthy of a place in the Tranſactions of the *Aſiatic* Society, the inſertion I muſt ſtill conſider as an indulgence, and my attempt, a proof that I am more anxious than able, to encreaſe the general ſtock of *Eaſtern* natural knowledge, recorded in the uſeful annals of the Society. Specimens of coral, for your acceptance, and for the illuſtration of this ſubject, are now forwarded.

The appearance of *Sumatran* coral does not altogether correſpond with the deſcriptions of the plant hitherto given *. This induces me to deſcribe ſuch parts as are imperfectly repreſented. The plant, to which the various ſpecies of coral belong, is one of the *Cryptogamiæ* of *Linnæus*, and may be reckoned one of the *Herbæ Marinæ* of *Tourneforte*; of the *Herbæ imperfectæ* of Mr. *Ray*. It may be reduced to three colours, red, black, and whitiſh-yellow: the laſt is the moſt common in the *Eaſtern* ſeas. It is of a fungous texture, equally hard out of and in its natural element; and its pores are changed with a juice of a milky appearance, in ſome degree acrid. The

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* See the remark at the end of this paper.

bark covers every part of the tree, and contains a number of perforated *papillæ* terminating in tubes, having two or more holes in each, intended, I imagine, for the admiſſion of the matter affording nutriment to the plant. The internal projections of the *papillæ* adhere to the particles of ſand and ſtone on which the coral grows, and are the only appearance of roots it exhibits. On examining the internal extremities of theſe *papillæ* by means of glaſſes, ſome very ſmall ramifications are diſcovered. Theſe are very eaſily obſerved in the *papillæ*, which are attached to the bark of the root. The tree is ſaid to grow to the height of two feet: I have ſeen ſome as high as ten feet. From theſe and other differences in appearance, I am apt to think that ſome *European* and *Indian* corals are not the ſame, but ſpecies of the ſame genus. From the very rapid growth of coral on the weſt coaſt of *Sumatra*, and in the *Eaſtern* ſeas in general, as will be ſhown in this paper, there can ſubſiſt but little doubt that it is a vegetable ſubſtance; though there have not been wanting ſome who have ſuppoſed it a foſſil formed like cryſtals and ſpars; and others, eminent naturaliſts, who have ranked it among the animal tribes. *Boccone* diſcovered that this plant encloſes a nutritious juice under its bark: and Count *Marſigli* remarked and obſerved its flowers and ſeeds. I ſhall here inſert *Marſigli*'s accurate experiment, which affords the deciſion of almoſt abſolute demonſtration in favour of coral being a vegetating plant. " Having ſteeped ſome coral, freſh-gathered in ſea-water, he perceived, in a ſhort time, that the little ruddy tubercles which appeared on the ſurface of the bark, began gradually to unfold, and at length opened into white flowers in the form of ſtars with eight points, which were ſuſtained by a little calyx, divided, in like manner, into eight parts. Upon taking the coral out of the water, the flowers immediately cloſed, and returned

into red tubercles as before; which tubercles, being closely squeezed, yielded a sort of milky juice: and upon returning the coral into the water as before, the tubercles, in an hour's time, opened, or flowered afresh; and this was continued for six or eight days, when the buds, or tubercles, ceased to blow any more. In ten or twelve days they became detached from the coral, and sunk to the bottom, in form of little yellow balls. These tubercles then, according to the analogy of plants, should be the flowers of coral; and the milky viscid juice contained therein the pollen. Accordingly it is held, that when this juice falls on a properly-disposed body or nidus, a new coral arises therefrom; and the analysis of coral answers precisely to that of other sea-plants, all of them affording a volatile urinous salt, and a thick blackish fetid oil."— Elementa Chemiæ of *Boerhaave*, page 135, Note, vol. 1, & Mem. de l'Acad. An. 1708.

Whether, after all, the striated *papillæ*, which are of a stellar figure, and the two or more apertures of which are divided, generally, into twelve parts, contain an animal whose labour produces the growth of the coral, or who inhabits the coral for its own immediate satisfaction, is a question that has been much agitated, without affording any certain conclusions. Monsieur *de Peyssonnel*, after having inquired into and discussed the various arguments for and against coral's being a petrification or a congelation, concludes that it is the work of an insect, which he denominates an *Urtica*, *Purpura*, or *Polype*, that contracts in air, expands in water, and is sensible to the touch, or the action of an acid. From *Marsigli*'s experiment, as recited above, I think we may safely conclude, that *Peyssonnel* mistook the matter, and supposed a flower an insect; for it is well known that many flowers, on being plunged into an acid, will

exhibit ſigns of contraction and movement. We obſerve many growing ſubſtances, which are inhabited by animals, or inſects, merely for their convenience, and not to promote the growth of ſuch ſubſtances, which they very frequently, on the contrary, retard. If an animal can be ſuppoſed to produce ſuch immenſe bodies of this ſubſtance, as I ſhall have occaſion to mention, whence does it derive the prodigious degree of nutriment requiſite for the purpoſe, as it is not found that it quits the centre of its ſtriated habitation? why do not theſe *vermiculi marini* leave cells behind them, as they advance the growth of the coral? We find none, but, on the contrary, the ſurface uniformly ſmooth and even. As for the external cells, they are the channels that convey nouriſhment, and correſpond to the fibres of plants. It muſt remain, however, in ſome degree, a doubt, whether theſe marine productions are zoophytes, produced by the labour of animals, or whether they are produced on a vegetating principle. It will be difficult to bring this matter to the teſt of modern natural philoſophy, *viz.* experiment: but till ſuch can be made, opinions muſt be various, though the majority, and apparently (from *Marſigli*'s experiment) the beſt founded, incline to the belief of corals being produced by vegetation. Having ſlightly reviewed both ſides of this curious queſtion, and having hazarded my own opinion, which can be of little weight, I come now to the intention of troubling the *Aſiatic* Society with theſe remarks, imperfect as they muſt appear.

The production of iſlands, on the weſt coaſt of *Sumatra*, by the very rapid increaſe of this wonderful plant, is a remarkable effect of the operations of nature, hitherto unrecorded in the annals of natural philoſophy. Mr. *Dalrymple* alone has alleged a fact, to which this account will add the weight of

convincing teſtimony. In the year 1784, I was directed to ſurvey the coaſt of the Dutch diſtricts on the weſt ſide of the iſland of *Sumatra*. During the courſe of this ſurvey, I had occaſion to lay down on my charts ſeveral ſhoals, conſiſting of branched coral, ſand, and ſuch heterogeneous matter as they will reſiſt and incorporate with themſelves, when impelled againſt them by the action of the ſeas, winds, tide, or currents. The ſurfaces of theſe ſhoals were at various depths, from one foot to three or more fathoms. They are of a conical form, the baſe, in proportion to the axis, being ſmall. The ſhape gives them, in general, the appearance of trees of that figure, ſuch as the poplar, &c. One of the ſhoals I viſited, to the ſouth-weſt of *Pooloo Pinang*, near *Padang*, was at that time covered by two feet and an half of water, and could not be diſtinguiſhed by veſſels paſſing at ſome diſtance, but at ſuch times as the winds produced a ſwell or agitation on it. I paſſed along this part of the coaſt in *February* 1789, very cloſe to this ſhoal, juſt four years and ſeven months after the period at which the ſurvey had been taken; and was not a little aſtoniſhed to obſerve a ſmall ſandy iſland, about ten yards in diameter, having a few buſhes growing on it, formed on the top of the ſhoal, which lies nearly in thirty-ſeven fathoms of water. I could not miſtake this ſhoal, as there was no other contiguous to it, and as my chart, by which I ſuggeſted the ſafeſt courſe to run in, then lay before me. In *May* and *September* 1789, I had an opportunity, in going to and returning from *Tappanoolly*-harbour (which I had been directed to ſurvey) to be again on ſeveral of the ſhoals included in my chart of the coaſts of the *Dutch*-diſtricts, and, according to my expectations, found the depth of the water on them conſiderably diminiſhed ſince the ſurvey had been taken. In March 1790, I was ſent for by a gentleman at *Fort Malborough*, whoſe

houſe commanded a view of the ſea, to obſerve the water breaking on two ſhoals in the roads. This gentleman had reſided on the coaſt near fifteen years, and frequently in this houſe, without having obſerved theſe ſhoals, which, had they appeared at any former period, muſt have been remarked, their ſituation being clearly and diſtinctly expoſed to the daily and immediate obſervation of the ſettlement. At the diſtance of ſeven miles from *Fort Marlborough*, nearly in a ſouth-weſt direction, there is a ſmall iſland, having a few cocoa-nut trees in it. Thirty miles (or it may be twenty-five) diſtant from this iſland, one of the northern pepper ſettlements is ſituated on a riſing ground. The gentleman reſiding there has informed me, that he has always been able to diſtinguiſh the maſts of veſſels lying at anchor near this iſland, and that he lately twice diſtinctly, in the proper bearing, obſerved the trees of the iſland: but that, afterwards, from hazy weather, or ſome other affection of the atmoſphere, he could not perceive the iſland, or rather the trees on it. Former reſidents of *Laye*, the place of obſervation, have, in vain, when uſing the beſt glaſſes, looked for this iſland, inviſible till lately. Such are the ſtubborn facts which may be adduced in proof, not only of the very rapid growth of coral, but alſo of the formation of iſlands from it, as a neceſſary and obſerved conſequence. The growth of coral alone may not produce this effect: other aiding circumſtances may intervene. *Boccone* and *Marſigli* have remarked, that, when coral meets with ſtones, coarſe ſand, or any other ſubſtances, it ſeizes them firmly, and ſpeedily includes them within a ſtrong extenſion of its cloſe ramifications. Theſe collections in ſeas, ſubject to frequent ſtorms and agitations, muſt be conſiderable, and promote, in no ſmall degree, the elevation of iſlands. Earthquakes are very frequently felt on this iſland, and on the contiguous ones. Se-

veral ſhocks are ſometimes experienced during the courſe of a month. It is obſervable that this tremendous phenomenon, in its progreſs, undulates the ſpace it moves, or travels, under; and that the concave parts of theſe undulations open into fiſſures when the motion is violent. It is not improbable but that ſuch openings take place under ſhoals, or immediately contiguous to them. In this caſe, to preſerve the equilibrium, it ſeems reaſonable to ſuppoſe that the ſurrrounding ſand and ſubſtances will ruſh in, hurried along by the general movement, in a greater quantity, from the degree of momentum impelling them, than what occupied the ſpace of the fiſſure when at reſt. Theſe hiatus take place only on the ſide of the undulation from which the earthquake proceeds; and the ſand on that ſide, now inclining to reſt, after having experienced the ſhock, but ſtill poſſeſſing a tendency to move in the direction of the earthquake, will naturally fall into the hiatus opened for its reception, before the undulation can reverberate into its original poſition. Hence the ſhoal, or iſland, will be in ſome degree raiſed, by an effect ſimilar to that of a lever, though by different means. Theſe iſlands and ſhoals, being further removed than other parts expoſed to the ſhock, from the ſubterraneous or ſubmarine crannies or channels in which the earthquake acts, will, of courſe, reſiſt its action more than parts poſſeſſing leſs incumbent weight. The undulations will, therefore, meet with more reſiſtance, and depoſit a greater quantity of ſand than in ſituations reſiſting leſs. In the formation of iſlands from coral and ſand, as ſoon as the ſand appears above the ſurface of the water, birds carry roots and various ſeeds attached to them, for the conſtruction of neſts: hence the ſpeedy appearance of buſhes and trees. Inſtead of ſuppoſing with ſome, that the numerous iſlands on this coaſt have been formed by the violent commotions of nature, occaſioned by

earthquakes, which ſeparated them from the continent on the above principles, it is more reaſonable to ſuppoſe their formation on the above principles, and chiefly by coral; more eſpecially, when we conſider that the depth of water between many of theſe iſlands and *Sumatra* is unfathomable. The numerous cluſters of iſlands in the eaſtern ſeas, from 36 to 16 degrees eaſt longitude, are all ſupported by baſes of coral, and ſurrounded by ſhoals emerging from the ſurface, or puſhing their conical fruſta into a new element. Experience has aſcertained the formation of iſlands from coral: it is not altogether conjecture to ſuppoſe that various groups of iſlands, in the great Eaſtern Archipelago, will, in proceſs of time, become continents, or inſular tracks or ſpaces of land. On the coaſt of *Coromandel*, in the immediate front of *Madras*, expoſed anchorage has produced, and produces annually, lamentable accidents, attended with much public detriment. The poſition of a ſheltering iſland in that ſituation would be an object of national benefit, and private ſafety and advantage. To attempt to effect this, a conſiderable quantity of coral might be tranſported from this coaſt, at no great expence, and ſunk, with ſtones and other ſubſtances, in ſeven, eight, or eleven fathoms of water. In the courſe, probably, of forty or fifty years, an iſland might be formed by the growth of this ſubſtance. This is a long period to look forward to for the benefit of futurity; but from what I have, from my own obſervation, inſerted in this paper, I am convinced of the practicability and ſucceſs of a ſcheme, which many will treat as chimerical and viſionary, while others, more thinking, will ſee the utility of the deſign and probability of ſucceſs; but will be deterred by the difficulty and tediouſneſs which would attend the execution.

REMARKS BY THE PRESIDENT.

It ſeems at length to be ſettled among naturaliſts, that corals and corallines are the cretaceous habitations of animals, and one of the links in the great chain of nature. The idea of making iſlands for the protection of ſhips at anchor, is very ſublime; but it might be feared, that very dangerous reefs of coral would be formed, before an iſle could appear above the water: an artificial embankment of coral might, perhaps, on ſome coaſts, be a powerful barrier againſt an encroachment of the ſea.

ON

THE COPPER OF SUMATRA.

I HAVE the ſatisfaction of laying before the *Aſiatic* Society a ſpecimen of copper-ore, the production of the iſland of *Sumatra*. It is found on and in the hills of *Mucchy* near the ſea, between *Annalaboo* and *Sooſſoo*, to the north extreme of our *Engliſh* ſettlement of *Tappanooly*. The ſoil, which generates the ore is a mixed loam, conſiſting of clay, ſmall ſtones, and red ſand, founded on an under-ſoil of ſoft rock, interſected with veins of this uſeful ſubſtance. The ſpace affording the ore is conſiderable; extending above a degree in length, and further eaſt, or into the country, than has been yet aſcertained. A conſiderable quantity of ore is annually collected on the ſurface of the hills; to which the indolence or ignorance of the inhabitants, at preſent, confines their ſearch. Its being found on the ſurface, may probably be aſcribed to the efforts of earthquakes, which are very prevalent on this coaſt, and over the iſland in general. The natives, from inexperience, are incapable of conducting a mine, and purſuing a metallic vein. They are content with excavating the ore, till their labour is interrupted by the flowing of the water, which ſoon takes place in a country ſubject to heavy rains throughout the year. As many of theſe veins widen as far as they have yet been traced, it is more

than probable that theſe hills contain inexhauſtible mines of this metal. The ore, by repeated ſmeltings, and other operations to free it from its ſulphur, has been reduced to a metal, and then found to include a conſiderable proportion of gold. As no part of the world contains a greater quantity of this latter metal than *Sumatra*, in proportion to the area it occupies on the globe, it is probable that the diſcovery of gold mines would attend the eſtabliſhment of copper ones in the hills of *Annalaboo*. This is ſo much the more probable, as metalline ſtones, of various kinds, and which the *Malays* regard as ſure indications of a ſoil affording gold, are found on theſe hills; independently of the conſideration, that gold-duſt is collected in the immediate neighbourhood, and in the interior country, contiguous to the hills yielding the copper-ore. It is ſingular, that the ſame method of rough ſmelting, which is practiſed at *Goſlaw* in *Germany*, ſhould be in uſe among the uncivilized inhabitants of *Sumatra*. The *Sumatran* method poſſeſſes more ingenuity, and is, at the ſame time, more ſimple. An undemonſtrated knowledge of the plaineſt and moſt obvious principles of ſcience, is congenial to the moſt rude as well as to the moſt civilized conceptions; and the advantages which the talents of *born genius* have conferred on *Europe*, are by no means a concluſive proof of the inferiority of intellect which the fortunate inhabitants of *Europe* liberally beſtow on their leſs enlightened brethren of the *Eaſt* and *Weſt*. That "time and chance happen unto all things under the ſun," is a truth that amounts to a voluminous diſquiſition on this ſubject. But to return. The ore-gatherers chuſe a level ſpot of hard clay, which they divide into equidiſtant points, by lines interſecting each other, and laid off equally on two ſides of a ſquare. Theſe points, included in the ſquare ſpace, they ſurround with circles, of which the

points are the centres. The circles are inverted bases of cones, excavated to receive the fuzed metal. The smelting space is now covered with wood, charcoal, and other combustible matters; and the ore is distributed among these admixtures. The melted ore is received into the formed holes, leaving the scoriæ or recrement above. The metal, still requiring many smeltings to render it fit for use, or perfectly malleable and ductile, is taken out in the form of pointed cakes, and sold for twenty *Spanish* dollars per *pecul*, or five pounds sterling for 133⅓ pounds avoirdupois weight. The natives are particularly careful in preventing accidents; for, previously to fusing the ore, they heat the ground to a great degree, in order that all the water near the surface may be absorbed, or made to exhale; having experienced, I imagine, that copper when in a state of fusion, meeting the smallest quantity of water, will fly in all directions, with a force destructive of every vulnerable substance within the sphere of its action. I have been informed, that the metal has been eliquated at *Madras* lately, and found to contain very little appearance of any other but of gold. The usual solvents, aquafortis, aqua regia, and spirit of salts, readily dissolve the *Sumatran* copper. A deep green solution is produced in a very short time, by the action of the weaker acids on the rough ore. The above method of smelting will separate all coarse, mineral, and heterogeneous substances from the metal; but will still leave it strongly impregnated with its peculiar mineral earth. The detaching of this mineral earth is the most difficult and expensive operation attending the refinement and purification of copper; it being frequently necessary to add a proportion of another metal to effect it. This consideration will, probably, prevent a private company from applying for public permission to

work these mines; and, therefore, they must remain in their present state, unless the East India Company will order the experiment to be made, from the reports and opinions of such as may be qualified to give them on so interesting a subject. By submitting this short account to the gentlemen of our Society, whose useful researches will, I hope, produce permanent national benefit, by advancing the knowledge of nature, of science, and of literature, opinions properly weighed will be diffused among the public, of the advantages that may result from an establishment for working copper-mines on the west coast of *Sumatra*.

TANJORE MAHARAJA SERFOGI'S SARASWATI MAHAL

ON

THE PLANT MORINDA,

AND

ITS USES.

BY WILLIAM HUNTER, ESQ.

ALTHOUGH the plant, which is the ſubject of this eſſay, be not a new ſpecies, yet, as it is cultivated to a great extent in *Malava*, and forms an important branch of the commerce of that province, I hope a particular deſcription of it, with ſome account of its culture and uſe, will not be unacceptable to the *Aſiatic* Society.

It is the *Morinda* of *Linnæus:* It belongs to the order *Pentandria Monogynia* in his ſyſtem, and is referred by him to the natural order of *Aggregatæ.* Here (though it may ſeem a digreſſion from the ſubject) I cannot help obſerving, that *Linnæus* is not altogether conſiſtent in the diſtinction, which he endeavours to eſtabliſh, between the *aggregatæ* (properly ſo called) and the *compound* flowers. In his *Philoſophia Botanica*, § 116, he defines a *compound* flower to be "that which has a broad entire receptacle, and ſeſſile florets;" and an *aggregatæ* flower, "that which has a broad receptacle, and florets ſupported on peduncles." According to theſe definitions, the *Morinda* ought to be placed among the *compound* flowers; but in the following ſection, *Lin-*

næus makes the eſſential character of the *compound* flowers to conſiſt in having all the anthers united: thus reſtricting it to his claſs of *Syngeneſia*. This not only excludes the *Morinda*, but ought perhaps to have, ſtrictly ſpeaking, excluded the *Kuhnia*, *Iva*, and *Ambroſia*; and even, allowing the approximated anthers in theſe genera to come within the meaning of the definition, it ſeems unaccountable that the *Nauclea (a)*, which appears ſo well entitled to a place in one of theſe orders, ſhould be excluded from both.

The *Aal* is a tree of middling ſize; the *root* branchy; the *trunk* columnar, erect, covered with a ſcabrous bark.

Branches from the upper part of the trunk, ſcattered; of the ſtructure of the trunk.
Leaves (ſeminal) oval, obtuſe, entire.
(mature) oppoſite, decuſſated, ovate, pointed at both ends, ſmooth, with very ſhort petioles.
Stipules lanced very ſmall, withering.
Peduncles, from the axils of the leaves, ſolitary, bearing an aggregate flower. *Calyx:* common receptacle roundiſh, collecting the ſeſſile flowers into an irregular head.
Perianth moſt entire, ſcarce obſervable above.
Coral, one-petaled, funnel-form; *Tube* cylindric; *Border* five cleft; the *diviſions* lanced.
Stamen: Filaments five, thread-form, ariſing from the tube, and adhering to it through two thirds of their length, a little ſhorter than the tube.
Anthers linear, erect.
Piſtil: Germ beneath*. *Style* thread-form, longer than the ſtamens. *Stigma* two-cleft, thickiſh.

(*a*) The *Cadam* of the Hindoos.

* The Germ is four-celled, and contains the rudimentsof four ſeeds.

Pericarp: common, irregular, divided on the ſurface into irregular angular ſpaces; composed of berries pyramidal, compreſſed on all ſides by the adjacent ones, and concreted with them, lopped, containing, towards the baſe, a fleſhy pulp.

Seeds in each berry four, towards the point oblong, externally convex, internally angular.

The ſpecies here deſcribed is called by *Linnæus* *Morinda arborea pedunculis ſolitariis*; and he gives it the trivial name of *citrifolia*; but the form of the leaves, in all the ſpecimens I have ſeen, does not exhibit this ſimilitude, as will appear by the inſpection of the accompanying figure, which was drawn from nature. There are figures of it given by *Rumphius* (Herb. Amboin. vol. 3. tab. 99) who calls it *Bancudus latifolia*; and by *Rheede* (Hort. Malab. vol. 1, tab. 52) who calls it *Cada-pilava*. In *Malava* it is called *Aal*; and in *Oude* it has the name of *Atchy*.

The plant grows beſt in a black rich ſoil, free from ſtones, in ſituations moderately moiſt, not too high, yet ſufficiently elevated to prevent the water of the rains from ſtagnating; and where there is near at hand a ſupply of water for the dry months. It is ſown about the middle or end of *June*, after the rain has begun to fall. The ground requires no manure, it is ploughed twice, or, if tough and hard, three times. The ſeed is ſown, either broad-caſt, or in drills, according to the fancy of the cultivator. The ground is then ploughed over again, and harrowed. In one *beegah* * of ground are ſown, from 1½ to 2½ *muns* † of ſeed. In fifteen or twenty days the young plants ſpring up. The field is then carefully weeded, and the grounds ſtirred with an iron inſtrument.

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* A meaſure of one hundred cubits ſquare.

† The *mun* of this country is ſixteen *ſeers*, of eighty rupees weight each.

This operation is repeated, at proper intervals, during the first year; and in the dry months of that year (that is, from *January* till *June*) the ground is three or four times laid under water. After the first year, it requires no farther care. In a year the plant grows to the height of one or two feet, according to the quality of the soil. In the third year, sometimes in the second, it bears flowers and fruit. The flowers appear in *June*, and the fruit ripens in *September* or *October*: but the fruit of those young trees is not used for seed, as it is said not to produce vigorous plants. In the months of *February* and *March* following the third year, the plants are dug up. They dig to the depth of three or four feet; the root, which is the only valuable part, extending so far into the ground. The wood of the plant is only used for fuel. Sometimes the necessities of the husbandman oblige him to dig the crop in the second, or even at the end of the first year; but the root is obtained in much smaller quantity, and less rich in colouring matter than if it had remained the regular time. The crop is not much affected by the excess or defect of the periodical rains. When it is dug at the end of the third year, one *beegah* yields from four to six *maunies** of the root in a wet state. These are spread on cloths, and dried in the sun for three or four days; at the end of which time there remains of dried root, one third or one fourth part of the original weight.

As the colouring matter resides chiefly in the bark of the root, the small twigs, which contain little wood, bear a higher price than the larger pieces. Therefore the roots, when dug up, are separated into three kinds, coarse, medium, and fine. The coarse sells for one rupee per *mun*, the medium two or three rupees, and the fine four rupees per *mun*, or four seers for a rupee.

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* The *mauny* contains twelve *muns* of this country's weight.

In particular fields they leave trees for ſeed at the diſtance of four, five, or ſix cubits. In ſix years they yield fertile and vigorous ſeeds. The trees, when of that age, are about ſix inches in diameter, and twelve feet high (branches included); but they continue fruitful for many years, and are ſaid to grow to a ſize not much inferior to that of a *Mango*-tree. When the fruit is ripe, it is gathered, laid in heaps on the ground, and covered up with ſtraw, or other rubbiſh, for fifteen or twenty days, in which time the pulp rots, and is conſumed. It is then put into a baſket, and waſhed, by repeated effuſions of water, to ſeparate the ſeeds, and free them from the remains of the pulpy matter. The huſbandman, who cultivates the plant, generally takes care to have on his ground a ſufficient number of trees for ſeed. If he is unprovided with thoſe, he may purchaſe the ſeed, immediately after it is prepared, for four or five rupees the *mun*; but if he neglects to purchaſe till the ſeaſon of ſowing arrives, he may be obliged to pay at the rate of two ſeers per rupee.

In the ground on which *Aal* has grown, they ſow wheat, or other grain, for five or ſix years; and it is obſerved, that the grain ſown on this ground thrives remarkably: and while the trees left for ſeed continue ſmall, grain of any kind may be ſown in their interſtices; but *Aal* would not thrive there.

The expence to the cultivator varies conſiderably in different villages. In one, where the plant is cultivated to conſiderable extent *, the pateil, or zemindar, gave me the following account of the expence attending the cultivation of one *beegah*.

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* *Khelana*, 7½ miles from *Oujein*.

To the Collector of the District	Rs.	10
To the Pateil, - -		1
To Writers, &c. Servants of the Pateil,		0 10
To digging up the Root*		15
	Total,	26 10

Now supposing, agreeably to the foregoing account that a good crop is six, and a bad one four, *maunies*; that each *mauny* yields, when dried, $3\frac{1}{2}$ *muns*, and that in this dried root, the coarse at one rupee, the medium at two, and the fine at four, are in equal quantities; then, the value of the good crop will be forty-nine rupees, and that of the bad one 32, 10, 8. The first of these leaves Rupees 22, 6, the other Rs 6, 0, 8, from each *beegah*. The medium, Rupees 14, 3, 4, we may estimate as the profit of the husbandman, out of which he is to maintain himself and his cattle for three years. In this account I have not included the expence of seed, as the cultivator is generally supplied with it from his own trees. Had he been obliged to purchase it, we must have added eight rupees to the expence of cultivation: but, as the crop sustains no damage by remaining in the ground, the cultivator can dig it up at his leisure; and therefore he generally saves by his own labour great part of the expence above stated for digging.

In another village†, the cultivator has the land on much easier terms; only paying three rupees for the crop, or one rupee yearly, to the collector. Therefore, the other expences being supposed the same, the crop only costs him Rs 19, 10, besides his own maintenance and that of his cattle.

* For digging a space 16 cubits long, and $3\frac{1}{2}$ cubits broad, the labourers are paid $4\frac{1}{4}$ pice, at fifty to the rupee.

† *Rindwasa*, about the same distance from *Oujein* as the former.

Besides the consumption of the root in the manufactures of this province, large quantities of it are exported to *Guzerat* and the northern part of *Hindostan*. I have not been able to learn the exact value of this exportation, but have reason to believe that it amounts, annually, to some lacs of rupees. The dealers, who come from those places (especially *Guzerat*) to purchase, advance money to the cultivator, and, when the crop is ready, buy it, either on the ground, or after it is dug up. In the first case, they dig a small portion of the field, and, according to the quantity it yields, form a judgment on the value of the whole.

The method of dying with this root is as follows: The cloth to be dyed is thoroughly washed and scoured, with an extemporaneous kind of soap-lie, made by mixing the oil of sesamum with the fossil alkali. Then, supposing the cloth (which is generally of a thin texture) to be twenty-six cubits long, and one cubit broad, the quantities of ingredients will be as follow:

Take of large *Her* * in powder, three ounces. Mix it well with four pounds of water. In this the cloth is to be thoroughly wetted, so that the absorption of *Her* may be as equal as possible. It is then to be squeezed, and spread in the sun for about forty-eight minutes, to dry, taking care that no drop of water fall upon it. The cloth, when dried, is of a cream-colour. It is kept in this state for four or five days, that the particles of the *Myrobalan* may be more firmly attached.

Then take of powdered alum, two ounces; dissolve it in lb ij of water. Wet the cloth thoroughly

* The *Chebule*; *Myrobalani maximæ, oblongæ, angulosæ*. C. B.

and equally in this ſolution. Wring it, and ſtrike it gently on a ſmooth ſtone, then ſpread it, for twenty-four minutes, in the ſun, to dry. When dried, it is of a pea-green colour. When perfectly dry, it is kept for four days, and then waſhed in cold water. To the manner and degree of waſhing, we are told, great attention is to be paid; as an error, either in exceſs or defect, would ſpoil the colour. When waſhed, it is dried in the ſun.

The cloth thus prepared, is ready to receive the colour, which is prepared in the following manner: Put $3\frac{1}{2}$ gallons of water into an uncovered copper-veſſel, and ſet it on a gentle fire. When it is ſomething more than lukewarm, put in the cloth, along with the colouring ingredients, which have previouſly been thus prepared. Take of *Aal*, from one to two ſeers, according to its quality, powder it, and rub it with two ounces of oil of *Seſamum* to each ſeer. Add of the flowers of *D'hawry* *, one eighth of a ſeer

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* A ſhrub, which grows wild on the hills, and on the banks of the rivulets, where they are formed of a graſſy ſod. The flowers are of a beautiful red colour, and are gathered both for the uſe of the dyers and of the apothecaries, who give an infuſion of them as a cooling medicine. They loſe their colour in drying, and only yield a ſlight browniſh tincture to water; ſo that the benefit derived from them in dying with *Aal*, ſeems to depend merely on their action as an aſtringent; which is confirmed by the ſubſtitution of *Purwas*, a ſtrong aſtringent, as an equivalent to *D'hawry*. The natural character of the *D'hawry* is as follows:

Cal. Perianth one-leaved, perſiſtent; *Tube*, bellied; *Border*, ſix cleft; the diviſions lanced, erect.

Cor. Petals ſix, lanced, acute, erect; a little longer than the calyx, ariſing from the edge of the *tube*, between the diviſions of the calyx.

Stam. Filaments twelve (in ſome ten or eleven) awled, erect, longer than the calyx, and ariſing from it. *Anthers* kidney form, incumbent.

Piſt. Germ oblong, two-furrowed. *Style* awled, aſcending, the length of the ſtamina. *Stigma* obtuſe.

to each ſeer of *Aal*; or, inſtead of *D'hawry*, one ounce and a half of *Purwás* *, in powder.

The cloth and colouring ingredients are continued on the fire, with a gentle heat, gradually increaſed, for about three hours. Towards the end, the water is made to boil ſtrongly. By taking up a little of the water, and examining its colour as it is dropped in the veſſel, they judge of the ſucceſs of the proceſs. It ought to be of a clay-colour, or a little deeper. If it proves very red, the colour would be ſpoiled; and the remedy is, to add a larger proportion of *D'hawry*. During this proceſs, the cloth is continually moved, by lifting a part of it with a ſtick out of a veſſel, beginning at one end and proceeding to the other. It is now taken out, wrung, and dried: after which, being waſhed in river-water, the red colour is complete. No. 1 is a ſpecimen of this colour, which is valued more for its durability than its beauty.

Peric. Capſule, ovate, acute, two-furrowed, two-celled, four-valved.

Seeds numerous, very ſmall: receptacle oblong.

Leaves oppoſite, lanced.

Here the oblong ſhape of the capſule and its two cells agree with the *Lythrum*; the diviſions of the calyx with the *Ginora*. *Linnæus* (Ph. Bot. § 177, 182, 183.) alleges that the calyx is more to be depended on than the Pericarpium in aſcertaining the genera of plants. Therefore, agreeably to theſe aphoriſms, I ſhould be inclined to refer the *D'hawry* to the genus *Ginora*; but it may perhaps be conſidered as a new genus to be placed in the ſyſtem between the *Lythrum* and *Ginora*.

* A kind of gall-nut, containing the exuviæ of a ſmall inſect, found on a ſpecies of the *Mimoſa*. In *Málava* it is called *Purwás*; in *Marwar*, *Succour*; and in the country about *Mongheer*, *Purwán*. This being a ſtronger aſtringent, we are told that an exact attention to the proportion of it is more neceſſary than to that of the *D'hawry*.

To make a Dark Purple, or Chocolate Colour.

Take of martial vitriol one ounce, diſſolve it in two pounds of water, and clear the ſolution by decantation. Mix, with a quantity of the above-deſcribed colouring decoction, ſufficient to wet the cloth, ſuch a proportion of this martial ſolution as will give the tint required. This is judged by inſpection, as the cloth will be of the ſame colour with the mixture. The cloth being taken out of the colouring decoction and wrung, is to be dipped into this mixture, and thoroughly wetted, ſo as to abſorb the colour equally and completely. Then, being dyed and waſhed, its appearance reſembles that of the ſpecimen No 2 and 3; but the tints admit of a great variety, according to the proportions of the martial ſolution. Both theſe colours are very durable, being little affected by waſhing. One of the quarters of *Oujein*, named *Jeyſingpoorah*, is inhabited by dyers, who conſume great quantities of this root. Their printed and ſtained cloths, beſides ſupplying the domeſtic conſumption, are exported to *Guzerat*, and other provinces.

TANJORE MAHARAJA SERFOJI'S SARASVATI MAHAL

ON

THE INHABITANTS

OF

THE HILLS NEAR RA'JAMAHALL.

BY LIEUTENANT THOMAS SHAW.

A SLIGHT knowledge of the language of the natives of the hills, in the diſtricts of *Bhágalpur* and *Rájamahall*, having brought to my obſervation that their cuſtoms and manners, as well as their language, differed from thoſe of the inhabitants of the neighbouring plains, I have, for ſome time, endeavoured to acquire a good account of them, from the belief that, notwithſtanding their connexion with and dependence on our government, they have been little known beyond the limits of the hills. The following deſcription does not contain much more than a bare tranſlation of what was written by the beſt informed mountaineer whom I have met with. I have ſpared no pains to render it faithful; for there alone it can have any merit. My information has been derived through a *Soubadar* of the *Rangers* (whom the late Mr. CLEVELAND had inſtructed in writing *Nagree*) as far as relates to the inhabitants of the hills in the three *Tuppahs* of *Mudjeway*, *Ghurry*, and *Munnuáry*. The firſt is to the ſouth-weſt of *Rajamahall*, extending as far as *Sicrigully*; the ſecond is

thence in a westerly direction, as far as *Shawhabad*; and the third lies to the south of *Ghurry*; from whose people those on the borders of *Bheerboom*, and south-east of *Rajamahall*, differ in many respects. Whatever was material in these latter *Tuppahs*, was related by a *Soubadar* from that quarter to the one who can write; and both attended me in translating them. The *tuppahs* of *Mudbun*, *Pyer*, *Chitoleah*, *Bar cope*, *Putsundaw*, *Junnee*, *Hurnah Par*, *Dumsai*, *Kuneeallah*, and others, have customs also peculiar to themselves. These I shall endeavour to ascertain.

The following relates immediately to the *Tuppahs* of *Mudgeway*, *Ghurry*, and *Munnuary*, from which may be collected what ideas the inhabitants have of one Supreme Being, of a future state, and of transmigration. It is true they worship many gods, but these are considered inferior to, and the medium of adoration of, one all powerful and omniscient Being; whom they call BEDO GOSSAIH, or the Great God. Their opinions on the metempsychosis, it is probable, have been borrowed from the *Hindus*, though they profess no particular veneration for the cow, or any other animal; for they believe it a punishment when God ordains a human soul, to transmigrate it into any of the brute creation; and it is also a received opinion, that for certain crimes in this life, souls are condemned to the vegetable world.

The natives of the hills in these *Tuppahs*, having no knowledge of letters, or of any character, have a traditional story, brought down from father to son (but in what age it was received, is not now known) that the *Bedo Gossaih* made heaven and earth, and all that is therein. To people the latter, seven brothers were sent from Heaven. At first they remained together; when the eldest brother was sick, the six younger collected all manner of eatables, which they

agreed to divide, and to ſeparate, to go into different countries; one, a *Hindu*, got fiſh and goat's fleſh in a new diſh, for his ſhare; a ſecond, a *Muſſulman*, was allotted fiſh, fowl, and every ſort of fleſh, except hogs, for his portion, in a new diſh alſo; a third, *Kirwary*; a fourth, *Kirrateer*, got hog's fleſh alſo in a new diſh; a fifth, *Kawdeer*, got all ſorts of fleſh, fiſh, and fowl, in a new diſh; a ſixth, who was deſtined for a foreign country, got ſome of every ſort of food, in a new diſh; and after his departure, it was not known what had become of him, till *Europeans* made their appearance, when, from their manner of living, it was concluded that they were the deſcendants of the ſixth brother; the ſeventh, *Mullare*, who was the oldeſt, and ſick brother, got ſome of every kind of food, but put them in an old diſh, for which he was conſidered an outcaſt, and ordered to inhabit theſe hills, where, finding neither clothes nor ſubſiſtence, he and his deſcendants neceſſarily became thieves, in which practice they continued, till ſuch time as Mr. *Cleveland* wiſely conciliated their attachment to the *Engliſh* government, by a liberal generoſity and munificence, while he entered their hills unattended, putting the utmoſt confidence in their faith; and made engagements to ſettle on their chiefs an inconſiderable monthly ſum, in conſideration of their good and peaceable behaviour and obedience, to which they have rigidly adhered; and this, it is related, put an end to their predatory incurſions and marauding. The *Kirwary* caſt croſſed the *Ganges* and lived in tents, having no ſettled habitation. The *Hindu* and *Muſſulman* remained in this country. The *Kawdeer* went to the ſouth; and this remained doubtful, till a party of them came to dig a tank for Mr. *Cleveland*. The *Kirrateer* went to the north hills of the *Ganges*. I cannot learn what names the brothers had, nor how they were provided with wives, to increaſe and multiply: the creation of women

does not bear any part in this defective account, which proceeds to relate, that *God* the Creator directed certain wombs to be fruitful. His commandments are, that men ſhould give to ſuch as will receive; and that, in like manner, others would give to them. By labour men muſt live; for this their hands were made; eyes were given to ſee with; the mouth to ſpeak good and bad, as well as to eat ſweet and ſour; and the feet to walk. Abuſe nobody without cauſe; neither kill nor puniſh, without a crime, or *God* will deſtroy you. Theſe commands being ſent, certain wombs were fruitful. But ſome men forgetting theſe divine ordinances, abuſed, beat, and oppreſſed each other without cauſe; when, the meaſure of their crimes being full, he ſummons them to his preſence; the meſſenger carries ſickneſs and death. On the ſinner's appearing before *God*, being charged with forgetting his commandments, he is bound and caſt into pits of maggots, or pits of fire, where he is to remain eternally.

Whoever keeps *God*'s commandments, behaves well in all reſpects: he will neither injure, abuſe, beat, nor kill any perſon, nor ſeize their effects, nor plunder them, nor waſte their grain, nor their money, nor their clothes, nor quarrel with any one; but praiſes *God* morning and evening; which laſt, the women alſo do. He will be charitable, clothe and feed the poor, and obſerve the feſtivals in *God*'s name, with the proper expence of grain, money, and clothes. *God*, for the juſt diſpoſal of the goods he had granted, for keeping his commandments and praying, ſummons the righteous perſon into his preſence, on his having enjoyed this world long enough. On his appearance, he is aſked how he dealt with men, and how they behaved to him. Having rendered his account, as well of what he beſtowed and received as of what he ate; that he injured nobody, but praiſed *God* morning and evening,—*God* anſwers, " I ſaw that you behaved

well, and kept my commandments; I will exalt you; in the mean time remain with me." After a ſhort ſojourn, he is ſent to earth, to be born of woman again, and to be a *Raja*, *Dewan*, or *Cutwall*, with abundance of worldly goods and territory. Should he forget to praiſe *God* in his exaltation, and give not meat to the hungry, but oppreſs the poor, *God* in his wrath will deſtroy him, ſnatch him away, and accuſe him of neglecting his commandments, and forgetting to praiſe him. He will then caſt him into a pit of fire, where, ſhould not his puniſhment be external, he will not allow him to be born again of woman, but to be regenerated in the ſhape of a dog or cat.

Whoever offends in the preſence of God, is diſmiſſed to this earth, to be born of women, either blind, lame, or in poverty, never to have houſe, clothes, or victuals, nor any thing but what is begged from door to door. Should a perſon poſſeſſed of rank, grain, clothes, land, and every thing he could want, forget *God*'s commandments, ſeize and plunder from others,—*God*, in his wrath for the abuſe of the good things which he had beſtowed, will make him poor and a beggar; and having decreed that he ſhall remain a certain time on earth for his puniſhment, this being fulfilled, death ſnatches him away, and he appears in the preſence of *God*. *God* orders a man to kill another, and he kills him, yet lives happily and content; but no one muſt, from his own will and pleaſure, deſtroy a fellow-creature, or *God* will deſtroy him. *God* orders a man to beat another, and he beats him; but whoever puniſhes a fellow-creature, without divine commands, the Supreme Being will direct a third perſon to puniſh the offender. No perſon ſhall abuſe another without *God*'s commands: whoever diſobeys, will in like manner be abuſed by a third perſon.

Whoever, without *God*'s commands, injures his neighbour, may expect divine retaliation. Should a man, seeing his neighbour's property, plunder or steal it, the *Bedo Gossaih* will either order him to be punished in like manner, or some of his family to die. Should you see a man lame, mock not at his misfortune, lest God should make you lame, or punish you in some other manner. Laugh not at a man who has the misfortune to be blind, or *God* will afflict you in like manner, or some other way. It has pleased Providence that a man should have his back broken; whoever laughs at or mocks him, will be afflicted in like manner; *God* will make him blind, or lame, or poor; therefore mock not the unfortunate. If *God* had made the lame, the blind, the broken-backed or poor to be laughed at, he would have pardoned such as mocked them; but as their defects are punishments, those who are perfect should not deride their misfortunes. Those on whom *God* bestows grain, riches, land, and power, ought to be charitable, and to cherish the unfortunate; should they, notwithstanding their wealth, be uncharitable, Providence will punish them, by rendering them poor, and reducing them to the necessity of working for their bread. When great men are charitable, *God* will protect them.

God directs the poor to the rich man's door to beg; should the latter uncharitably refuse to relieve their wants, Providence will be displeased at the abuse of the good things which he had bestowed, and will render the rich man poor, helpless, and destroy his family. *God* can exalt the poor man. Such are the dispensations and power of Providence. A man robs and kills another, and casts the body away to conceal the murder from the relations of the deceased, who conceive their kinsman to have been killed by a snake or a tiger; but *God* cannot be deceived: vengeance will fall on the murderer, or his relations; he, or some of

them, will fall a ſacrifice to a tiger or a ſnake; divine vengeance will ſurely await him. Whoever kills a tiger without divine orders, will either himſelf, or ſome of his relations, fall a ſacrifice to a tiger.

From ſuch ſuperſtition, the natives of the hills are averſe to killing a tiger, unleſs one of their relations has been carried off by one; when they go out for that purpoſe, and having ſucceeded, their bows and arrows are laid on the body of the animal, they invoke *God*, and declare that they killed it to retaliate for the loſs of a relation. Vengeance thus ſatisfied, they vow not to attack a tiger, without the provocation of loſing a kinſman.

God ſends a meſſenger to ſummon a perſon to his preſence: ſhould the meſſenger miſtake his object, and carry off another, he is deſired by the Deity to take him away; but as the earthly manſion of this ſoul muſt be decayed, it is deſtined to remain midway between heaven and earth, and never can return to the preſence of *God*. Whoever commits homicide without divine orders, can never appear in the preſence of the Deity; his ſoul is deſtined to remain mid-way between heaven and earth. Whoever is killed by a ſnake, as a puniſhment for ſome concealed crime, can never appear in the preſence of the Deity; his ſoul is doomed to remain mid-way between heaven and earth; yet *God* will deſtroy the ſnake: but, if it acted by Divine orders, Providence ſpares it. Should a rich man call the poor, with promiſes of giving them alms, and not perform them, and ſhould the poor exhort *God* to make him poor too, for his uncharitable deceit, Providence will either puniſh him in this way, or ſome other; but by penance and prayer he may be pardoned. As a man marries a woman at a great expence, ſhould ſhe be guilty of infidelity, and conceal the ſins ſhe had committed, which is the greateſt ag-

gravation of it, *God* will be incenſed and puniſh her, by making her ſick, lame, or blind. Whoever commits fornication and conceals it, may dread divine vengeance. To avert falling ſick, or being otherwiſe puniſhed for his crime, he muſt avow it, pray to be forgiven, and ſacrifice a goat at *Dewarry Nad*, the ſhrine of their houſehold *God*, the blood of which is to be ſprinkled over the linen, to purify him. If a man caſts a luſtful eye on his neighbour's wife, *God* will puniſh him; for it is forbidden. Whoever takes poiſon and dies, can never go to Heaven; his ſoul will be doomed to wander eternally; he will be convulſed and vomit, with no more than the daily allowance of as much rice as can be put on an *aura* leaf (which is ſmaller than the *tamarind*-leaf) and as much water. Whoever hangs himſelf, ſhall never appear in the preſence of *God*; his ſoul will have no place aſſigned it; but he will be doomed to wander eternally with a rope about his neck. Whoever drowns himſelf, ſhall never appear in the preſence of *God*; his ſoul ſhall remain mid-way between heaven and earth; and *God* has ordained, that whoever drowns himſelf, ſhall be doomed to work eternally, day and night, without intermiſſion, to make the crooked banks of a river ſtraight, where the ſtream ever undermines, as faſt as the labourers inceſſantly work. Whoever, undirected by the Deity, has the misfortune of being killed by a fall from a tree, his ſoul is received into the kingdom of heaven, but not admitted into the preſence of the Almighty: it is, however, ſerved with ſuch things as are provided for the righteous. Whoever receives favours, and is guilty of the ingratitude of abuſing his benefactor, will not be well treated in other places; *God* will expoſe him to miſery for his ingratitude. Whoever falls in battle, is well received by *God*, and fares ſumptuouſly; for the Deity is pleaſed with his fate. Whoever is loſt travelling by water, is well received in Heaven: the Deity will take him unto himſelf.

The *Demauno*, or *Dewassy*, seems to be more of an oracle than a priest. Those who wish to initiate themselves, represent that, by dreaming, they can foretell what will happen; that the *Bedo Gossaih* appears to them nightly, and braids their hair, from which it grows remarkably long; they must never cut it; as it is believed, if such an act did not prove fatal to them, that, at least, their dreams would no longer be prophetic. This oracle fortells to one person, that he shall have a plentiful harvest; to another, that he shall become rich; a third is told, that he is to fall sick; a fourth, that he shall die; a fifth, that he shall be succesful in hunting. A family is admonished to sacrifice and pray at a certain shrine, to appease an offended *God*; he prophecies when there will be a scarcity, and when it will rain. Thus, his predictions being verified, the people have faith in them; and one who is sick attends him for advice, which is afforded the following morning, when the *Demauno* has dreamt of the case, or *God* having appeared to him in his vision, informed him what will be the fate of the patient, and what he must do to get well. Another informs him, his crops are not so good as usual, and desires to know which God is offended, and what he must do to appease him. A sportsman informs him, that he is not so unfortunate as usual, and seeks to know what he must do to be so. Some ask, at what shrine they must make their offerings. All who consult this oracle must make a present, and return the following day for an answer. On the first full moon of *January*, after his inspiration, he sallies out of his house, runs about, and pretends to be frantic: but neither injuries nor speaks to any one. He approaches the door of his chief, and make signs to have a cock, and a hen's egg, brought to him: the latter he immediately eats, and wringing off the head of the cock, sucks the reeking blood, and throws away the body;

whence he proceeds to unfrequented rivers and jungles, where he remains ſeven, or nine days, and is ſuppoſed to be fed by the Deity, whom he repreſents on his return, and when his reaſon is reſtored, to have treated him ſumptuouſly; that God had ſometimes ſeated him on a large ſnake, and, at others, made him put his hand into the mouth of a large tiger; but without fear of any danger. On the *Demauno*'s emerging from his retreat, he brings with him a large *plantain*-tree, which he had torn up by the roots, and places it on the roof of his houſe; then returns, and brings in a large *ſeedee*-tree; again, brings in a *muckmun*-tree; and laſtly, a *ſeege*-tree; all of which, to the aſtoniſhment of the people, he, without human aſſiſtance, places, in like manner, on the roof of his houſe. It is to be underſtood that theſe trees are too large for one man to pluck from their roots and carry; and that the *ſeege*-tree is full of thorns, which cannot be touched with impunity; but, by divine aid, he effects theſe wonders. On the night of his return, he repreſents, that the *Bedo Goſſaih* appears to him in a viſion, and deſires him to ſacrifice a pidgeon or a cock to him, with prayers. Accordingly, in the morning, having recovered his ſenſes, he takes ſome oil to beſmear the trees he had depoſited on the roof of his houſe, and ſome red paint to make ſtreaks on them; over this he ſcatters ſome undreſſed rice, and laſtly, ſacrifices the pidgeon, ſo that the blood may fall on the trees; and, during this ceremony, he prays.

Henceforward he muſt never ſit with or touch any woman but his wife; ſhould any other woman even touch him by accident, it is ſuppoſed his predictions would fail; or, ſhould he marry more than one wife at a time, the people would have no faith in him. Having thus paſſed his novitiate, and

obtained the reputation of a good *Demauno*, he is invited by his chief to the buffalo-feſtival, who puts round his neck a red ſilk thread, with five cowries ſtrung on it, and binds a turban on his head, beſeeching *God* that he may have power of reſtoring health to the ſick, exorciſing ſuch as are poſſeſſed of devils, and that all his predictions may prove true. In this manner he is ordained, and officiates at the feſtival. A *Demauno* drinks of the reeking blood of all offerings ſacrificed while he is preſent. He muſt never eat beef, or *dhai*, nor drink milk; for, in doing ſo, his prophecies would fail. There is no fixed number of *Demaunos* for the duty of a village; ſome have ſeveral, while others have none. The *Maungy* of every village ſacrifices a buffalo in either the month of *Maug*, or *Phagun*, annually; he fixes a day, and deſires his vaſſals to attend, each of whom contributes a portion of grain, oil, or ſpirits for the feſtival: proviſions being collected on the day appointed, the *Maungy* directs his followers what to do. Some cook, other go and cut a large branch of the *muckmun* (or *ſicwa*) tree, which is brought, and planted before the *Maungy*'s door, one of whoſe family carries out the *kundone* (a ſacred ſtool with four feet) and places it under the ſhades of the *muckmun*-branch, waſhes it, rubs it with oil, ſpots it with (*ſowndra*) red paint, and binds it with a thread of red ſilk; the *Maungy*, having made his *ſalám* to the ſtool, ſits on it; the *Demauno*, or prieſt, ſits on the ground to his left, and prays firſt; after which he gives the *Maungy* a handful of unboiled rice, which he ſcatters cloſe to the *muckmun*-branch, addreſſing himſelf to *God*, to protect him and his dependants, and to be propitious to them, adding a vow to perform and hold this feſtival annually. During the time of praying, the *Maungy*'s drums are beating, that all within hearing, who are poſſeſſed of devils, may run, and pick up the rice to eat:

having gathered it all, they are ſeized, bound, and taken to a ſmall diſtance from the altar, when the buffalo, with ropes on all his legs well ſecured, is hamſtrung by the *Maungy*, to entertain his barbarous followers, in order that they may be diverted by his ſtruggles and exertions, in forcing him to the *muckmun* branch, where his head is cut off; and the perſons poſſeſſed of devils, who were bound, are ſet at liberty,' and immediately ruſh forward to take up the buffalo's blood, and lick it while reeking. When they are ſuppoſed to have enough, they are beſprinkled with water, which renders them completely exorciſed, and they retire to a ſtream to bathe: the adherents come forward with their offerings of rice, oil, and ſpirits, and receive a bleſſing from their chief, who has the buffalo's head dreſſed, and eats it with the prieſts and muſicians: the *kundone* being taken into the houſe, puts an end to the ceremony of the day. The next morning the adherents aſſemble to feaſt on the buffalo and other things which the *Maungy* furniſhes. At the expiration of five days a fowl is immolated, and the blood ſprinkled on the *muckmun*-branch, which is taken up, and with the horns and ſome of the bones of the buffalo, is faſtened on the roof of the *Maungy*'s houſe, where they are left to decay. In ſome places ſtages are erected for theſe ſacred fragments, at the north-eaſt angle of the *Maungy*'s houſe. The chief *Maungy* of a *tuppah* (which is a number of hills that have villages on them) whoſe authority is acknowledged by the *Maungies* of the ſeveral villages in his limits, appoints a time annually to pray, that they may have rain enough for their crops. This feſtival may be held in any month in the year, except *Poos*, in which they neither marry, build a houſe, nor undertake any thing of conſequence, conſidering it an unlucky month. The chief of the *tuppah* having determined on a day, ſends an *arra* to the

Maungy of each village, desiring him to attend with twenty or thirty of his men by the day fixed on: when assembled, they all repair to the place established without the village, for the ceremony of the *Satane*: having planted a small branch of the *chagulno* (*bale*-tree) the head of a goat is severed with a sword, that the blood may fall on the leaves of the *chagulno*: the *Satane* is then restored to, to ascertain what chief will be most acceptable to the *God* of Rain, to pray to on this occasion; this being settled, a day is named for prayer, upon which all the *Maungies*, with their vassals, assemble at their chief's, before whose door the *Demauno* and the *Maungy*, on whom the *Satane* election had fallen, pray: after which a buffalo is sacrificed, and the same forms observed as described in the buffalo-festival: it continues as long as the provisions which were presented by the several *Maungies* last. The danger of a scarcity is thus supposed to be averted, and that their crops will flourish.

When a *Maungy* has established a village, should a tiger infest it, or the small-pox, or any plague prove fatal to its inhabitants, it is supposed that *Ruxey Gossaih* is desirous of having a shrine raised. The *Satane* is resorted to, to confirm the supposition, and the *Demauno* consulted. On both agreeing, these steps are sufficient to stop the ravages of any beast of prey, and to avert any further fatality from the small-pox. Thus relieved, the *Maungy* calls the *Demauno* to get *ruxey* (a sacred black stone) for him; in compliance with which the *Demauno* has a vision, in which the Deity appears to him, and informs him where the god *Ruxey* is to be found, directs him to the spot, and desires him to raise him with his own hands, and to present him to the *Maungy* in the morning. The *Demauno* gets a branch of the *seede* (a tree peculiar to the hills); benjamin

is burned before the *Maungy*'s door, which he ſmells, and proceeds, followed by ſome men to the ſpot where *Ruxey* is to be found; having ſmelt the godhead, he directs the perſons who were in attendance to dig for him; to faciliate their work, water is thrown, to ſoften the earth; and when *Ruxey* is diſcovered, the *Demauno* takes him up, and carries him to the *Maungy*, who immediately ſets out, with his divine preſent, in ſearch of a large tree, about half a mile, or leſs, from the village, under the ſhade of which he places it, and encloſes it by a fence of ſtones, and a hedge of *ſeege:* a fowl and a goat are ſacrificed to the god, whom the *Maungy*, or ſome other acceptable perſon (and it is the object of the *Satane* to find out who is moſt virtuous and moſt worthy to addreſs the god) worſhips and retires.

At any other time when this god is worſhipped, a fowl and goat are ſacrificed; and the *Maungy*, or perſon who prays, is attended by two drummers and an old man, who has no wife, and from age, has no connexion with women, to partake of the offerings with the preacher; of which others, who have forſworn all connexion with women or drinking intoxicating liquors, may ſhare. Whoever violates this vow by drinking or cohabiting with women, it is believed will become fooliſh; yet he may recover his reaſon by aſking pardon of the god, and by offering a fowl and goat, with prayer in ſacrifice at the ſhrine; but he can never be a *Hook Moko*, or an elect eater, again.

Idle men and women muſt not approach or profane the place where *Ruxey* is depoſited, by ſpitting towards him, or by doing any uncleanly act near it: ſhould any perſon, through forgetfulneſs, or ignorance, be guilty of any ſuch acts, by ſpitting, he will get a

ſore mouth; and other more offenſive tranſgreſſions are productive of a ſtranguary, or flux, reſpectively; and theſe diſeaſes are often conſidered as the effects of ſome heedleſs tranſgreſſion of the above nature, which is diſcovered by the *Satane*, or ſuch like proof: their remedy is to give a fowl to the *Maungy*, who makes an offering of it to the god, who is thus appeaſed. If the patient recovers, well; if not, the friends go to a neighbouring village, to find out, by the *Satane*, the cauſe of their relation's illneſs: if he is not thus relieved, they go to a ſecond; and, on failing, they conſider it as an affliction by the diſpenſation of the Supreme Being, who will either ſpare, ſhorten, or prolong the life of the offending patient, according to his will.

The *Chitaria*-feſtival is held but once in three years. The celebration of it ſo ſeldom is, probably, from its being very expenſive to the *Maungy*, who bears the charge. It is not every village that has a *Chalnad*, though he is conſidered as the *God* that preſides over the welfare of villages; but, like *Ruxey Nad*, he is not ſuppoſed to be eſſential to their happineſs till the inhabitants are haraſſed by ſome plague or peſtilence; when the *Demauno*, on being conſulted, informs the *Maungy* that this Deity is deſirous of having a *Nad* raiſed; that effecting this, and worſhipping him, will put an end to their misfortunes. The *Demauno* then dreams of the place where this ſhrine is to be found, in the ſhape of a black ſtone; he proceeds in the morning to diſcover it, obſerving the ſame forms as are deſcribed in obtaining *Ruxey Nad*; when found, the ſtone is placed under the ſhade of a *muckmun*-tree contiguous to the village, and undergoes no alteration in its form from the chiſſel.

Among the preparations for the *Chitaria*-feſtival, the *Maungy* muſt provide a cow and a piece of red ſilk, previous to the day fixed for prayer. The *Satane*, as uſual, is performed, to find out what two of the *Maungy*'s vaſſals will be moſt acceptable to the godhead, to pray. This point being ſettled, and every thing ready, a day is fixed: on the eve of this holiday, the piece of ſilk is cut in two, and one part given to one of the wives of each of the preachers, with whom their huſbands have not cohabited for ten or fifteen days previouſly. The *Demauno*, *Maungy*, *Cutwal*, *Phojedar*, *Jemmadars*, and *Bundareens*, having been invited into one of the preachers houſes, the *Demauno* gives water to two *Kalewars*, one *Dolewar*, one *Mangeera*, and one *Jelaum*, to waſh their hands; and theſe muſicians are taken into the houſe: a feaſt is ſerved, of which all preſent partake, as ſoon as the chiefs have thrown a little of each diſh away, in the name of *Chaland*. I muſt here digreſs, to obſerve, that it is a cuſtom through all the hills, to throw a little of their meat away at every meal, previous to their eating; and the ſame rule is obſerved in drinking; the intention of which is, to avert any bad conſequence from any devil or evil ſpirit having defiled it. The *Bandareens*, whoſe particular province it is at all feſtivals to ſerve out the *toddy*, or ſpirits, perform that office; and the chief having ſpilled a little alſo in the name of *Chalnad* for a libation, the party drink and ſing all night, in praiſe of *Chitariah Goſſaih*, invoking his protection, the muſicians, or rather drummers, beating at the ſame time. Should any perſon ſing a different ſong, he is fined a fowl, which is ſacrificed, and the blood ſprinkled over the whole party. During the courſe of the night they patrole the village five times, leading a cow with them; in the morning, the *Demauno*, the two preachers and drummers, proceed to *Chalnad* with the cow. Having finiſhed their

prayers, the cow is ſacrificed by one of the preachers, in ſuch a manner that the blood may fall on the ſhrine: a feaſt is immediately made of the fleſh, and all the men who accompanied them from the village, except ſuch as may be diſqualified, from domeſtic cauſes, partake of it. On their return to the village, they ſend notice of their approach, that the two wives of the preachers, between whom the piece of ſilk was divided, may take off their clothes and ornaments, and the ſilk round their middles, covering them from their waiſts to their knees: their hair is faſtened in a knot on the crown of their heads; and every part of the body which is expoſed, is ſpotted with a mixture made of turmeric, powdered, and the heart, or white part, of *Indian* corn, which is finely ground for that purpoſe: part of this is alſo ſent to the preachers, that they may be ſpotted in the ſame manner, and with it the halves of four mats thus prepared. The two women (the whole village, men, women, and children being aſſembled to ſee the proceſſion) ſet out, one following the other, and taking care not to advance the foot which is up beyond the toe of that on the ground, to meet the preachers, who obſerve the ſame pace as their wives; and the mats, as the parties paſs over them, are always taken up and placed again before. Having paſſed each other, the women take place behind the men, and follow them by the ſame ſtep at which they at firſt ſet out, to the houſe of one of the preachers: when arrived, the men taking one ſide, and the women the other, they waſh and change their clothes. Here the ceremony ends; and the preachers, with their wives, are invited to a feaſt at the *Maungy*'s.

The above is the only feſtival where women can aſſiſt, or bear any part, as a woman never prays in public on theſe hills. It has been before ſaid, that they

are to recommend themſelves to the protection of the Supreme Being, morning and night. During the time of the above feſtival, the compliment of a *ſalam* is not paid to any perſon.

Pow Goſſaih, or the God of the Road, or Highway, is the firſt worſhip young men perform; though it is not undertaken till ſome accident has induced the perſon to conſult the *Chereen* or *Satane*, whether his praying and making an offering will be acceptable. This trial is perhaps of itſelf ſufficient to confirm the opinion, that *Pow Goſſaih* is offended; therefore the young ſuppliant vows to worſhip him. On the day of thankſgiving, on which the new *Takalloo* is firſt eaten of, or on the day appointed for the new *Koſarane*-harveſt, he proceeds to a high road, and cleans and waſhes a ſmall ſpace under the ſhade of a young *bale*-tree: in the centre of this he plants a branch of the *muckmun*-tree: round it he makes marks and ſpots with red paint, and with a handful of rice, which he lays cloſe to the branch, placing a hen's egg on it, on which three ſtreaks of red paint were drawn, he invokes the Supreme Being, and God of the Road, to protect him while travelling, and ſacrifices a cock, the blood of which is thrown on the *muckmun*-branch: the offering, being dreſſed with rice, is eaten by the ſuppliant and ſuch as may have attended him. The ceremony ends by breaking the hen's egg; and is never repeated by him unleſs he ſhould again meet with ſome accident while travelling; on which the *Chereen*, or *Satane*, is reſorted to, for a confirmation of the apprehenſion that it was cauſed by *Pow Goſſaih*'s reſentment, and his deſire of his being worſhipped.

Dewary Goſſaih, or the God who is ſuppoſed to preſide over the welfare of families, is the ſecond worſhip which men perform: there is no fixed time

at all for it. He who diſcovers by the *Cherreen*, or *Satane*, that the welfare of himſelf and family depends on his holding this feſtival, diſtils ſpirits, purchaſes a hog, rice, red paint, and oil; and, having fixed on a day, invites his *Maungy* and friends on the day appointed: a ſmall ſpace before the threſhold is bruſhed and waſhed, and a branch of the *muckmun* planted on it: on this ſome red paint is put, as well as marks made round it. The *Maungy* and his officers are taken into the ſuppliant's houſe, when pots of ſpirits and proviſions are given to the former, as well as meat and drink to all the company. After a ſhort repaſt, the ſuppliant, with a hen's egg and a handful of rice, approaches the *muckmun*-branch, cloſe to which the former is depoſited on the latter. During this ceremony he implores the Supreme Being and *Dewary Goſſaih*, to be propitious to him and family. The hog is ſacrificed by a relation, as an offering to *Dewary Goſſaih*, with profeſſions of again obſerving the feſtival whenever *Dewary Goſſaih* may deſire it. A feaſt is made with the oblation; and, at the concluſion, the ſuppliant breaks the egg, and pulls up the *muckmun*-branch, which he places on the roof of his houſe.

Kull Goſſaih, or the *Ceres* of the mountaineers, is worſhipped annually by cultivators, in the ſeaſon of ſowing their fields: the proper time is aſcertained by conſulting the *Demauno*, and confirmed by either the *Cherreen*, or *Satane*; and is attended with more or leſs expence, according to the means of the ſuppliant. If poor, it is deemed ſufficient to make an offering of a cock; thoſe who can afford it, purchaſe a cut hog and a cut goat, diſtil ſpirits, buy rice, red paint, and oil, and invite the *Demauno* to aſſiſt them in praying, as well as their friends, chiefs, and neighbours, to a feaſt. On the day apportied, the *Demauno* goes early to aid in diſtilling ſpirits,

and in other preparations for the feaſt: the chiefs and others, having entered the ſuppliant's houſe, are preſented with meat and ſpirituous liquors to drink: the *Demauno* is alſo introduced with two *Kalewars* and one *Dolewar*: he, and the ſuppliant, and the *Maungy*, facing the middle ſupporter of the houſe, pray for the welfare of the maſter, making a libation, and throwing down ſome meat, in the name of *Goomo Goſſaih*, and of *Kull Goſſaih*: the *Demauno* and ſuppliant burn incenſe, while the *Kalewars* and *Dolewar* beat, and the *Maungy* and chiefs eat and drink. After this, the ſuppliant proceeds, with the *Demauno*, muſicians, and all who may be diſpoſed to join in the proceſſion, to his field, where, at the ſtump of a tree, having cleared a ſmall ſpace, and planted a branch of the *muckmun*, and prayed with the forms already deſcribed, burning incenſe,—the goat and hog are ſacrificed by a relation of the ſuppliant's (who gets a rupee and a turban for this ſacred office) ſo that ſome of the blood may fall on the *muckmun*-branch, and of which the *Demauno* pretends to drink a conſiderable quantity. He gives out that the blood digeſts in his throat, and does not paſs into his ſtomach.

Of each of theſe offerings, the *Maungy* is preſented with a fore-quarter for his family; and of the remainder all, except ſuch whoſe wives are in their ſeparation, partake. At the concluſion, the *Demauno* gives water to the muſicians and the ſuppliant, to waſh their hands, who return with the latter, and feaſt and drink at his houſe as long as any fragment of the proviſions which had been prepared for the feſtival remains.

The *Demauno* having deſired any perſon to worſhip *Goomo Goſſaih*, and the *Cherreen*, or *Satane*, having confirmed his ordinance, the ſuppliant muſt

rear a cut kid and a cut pig for that expreſs purpoſe, about two years, more or leſs. Having acquired property enough to perform this promiſe, for it is attended with conſiderable expence, he ſends invitations to his chiefs and vaſſals, to thoſe alſo in the neighbourhood, and to his relations; and, to mark the time for the feſtival, a ſtring, with a number of knots equal to the number of days that will intervene, is ſent to each. From theſe ſtrings, to avert miſtakes, one knot is daily cut: in the interval the ſuppliant is employed in diſtilling ſpirits, and collecting materials, ſuch as rice, oil, red paint, &c. when one knot remains, the gueſts aſſemble, and on the morning of the day appointed, ſome of the ſuppliant's neighbours, or relations, proceed to the jungles to cut three ſmall *muckmun*-trees. Before the firſt is hewn, a cock is ſacrificed, that the blood may fall on it, and ſome ſpirits thrown on it, as a libation to *Goomo*. As ſoon as the branches and bark are ſtripped off, two men are ſufficient to carry each tree, and lay them without the village, where it is their buſineſs to prevent men, goats, or fowls, from touching them; and the ſuppliant, informed of their arrival, ſends them drink for their trouble. In the mean time he takes the chiefs and their officers, with the two men who had prayed at the *Chittaria*-feſtival, into his houſe, and preſents the *Maungy* with two pots of ſpirits and a hog: the *Demauno*, two *Kalewars*, and a *Dolewar* alſo go in. At their entrance, the *Demauno* gives water to the muſicians, to waſh their hands; he takes a ſmall wicker-baſket, containing about a *ſeer* of rice, on which he puts red paint, and places it with two pans near the middle ſupporter. During this the *Kalewars* and *Dolewar* beat, and incenſe is burning; the *Maungy* having made a libation, thrown out ſome meat, and ſacrificed the hog in the name of the gods, he and the chiefs eat and drink.

The *Demauno*, ſuppliant, and muſicians, repair to where the trees are; whence the trees are brought home, laid lengthwiſe, eaſt and weſt, cut the proper length, and the ſuppliant and his wife ſprinkle turmeric-water on them; the *Demauno*, mounting aſtride on the one which had been firſt cut, is carried five times round the houſe, when they are taken in, and, ſome earth being dug, are united to the middle ſupporter (which is called *Goomo*) being firſt ſpotted with red paint, and bound with a red ſilk thread. Incenſe is burned; and the *Demauno*, with a handful of rice, prays, laying the rice down, and placing a hen's egg on it, which has been previouſly thrice ſtreaked with red paint: the ſuppliant, receiving a handful of rice from the *Demauno*, alſo prays, throwing it on the egg, when one of his relations brings up the fat goat, and ſacrifices it ſo that the blood may fall on the *Goomo*. For this ſacred office he gets a rupee and a turban. The *Demauno*, ſuppliant, and muſicians, and all who may be diſpoſed to be of the proceſſion, procced to a field, where, ſweeping and waſhing near the ſtump of a tree, they plant the branch of a *muckmun*, and round it and on it make ſtreaks of red paint: incenſe is then burned, and with a handful of rice and a hen's egg, the *Demauno* and ſuppliant repeat the prayers and ceremony which had been obſerved in the houſe, when the fat hog and another goat are ſacrificed by a relation. Some of the blood of theſe animals muſt fall on the *muckmun*, and the *Demauno* drinks of it.

A fore quarter of each of the offerings being ſent to the *Maungy*, they feaſt and return: previous to entering the ſuppliant's houſe, the *Demauno* gives him and the muſicians water to waſh their hands. The relations of the ſuppliant attend him, preſent him with ſpirits and a cock each, and anoint him,

his wives, and children with oil: he ſacrifices the cocks, makes a libation, and throws away ſome meat in the name of *Goomo:* they feaſt and drink for two or three days, and then repair to their homes. On the fifth day the ceremony concludes, by the ſuppliant ſacrificing a cock to *Goomo Goſſaih*, and another to *Kull Goſſaih.*

Goomo Goſſaih is alſo worſhipped as above, with this difference, that the ſuppliant does not eat, drink, or ſmoke in his houſe, or partake of any thing that had been in his houſe, for ſeveral days before the feſtival; nor is he allowed to partake of the offerings: and this prohibition continues for five days after the feſtival, which is called *Oogoſs Goomo Goſſaih.*

The worſhip of *Chumdah Gſſoaih* is ſo expenſive, that none but chiefs, or men of property, can ever afford it, and theſe not oftener than once in three years; and therefore the votaries to this ſhrine moſt frequently exceed that period for ſo expenſive a ceremony. They firſt conſult the *Demauno*, and have recourſe to the *Cherreen* and *Satane*; both of which muſt agree with what the *Demauno* preſcribes, before this feſtival can be held: when thus ordained, the ſuppliant muſt provide about a dozen hogs, as many goats, about three ſcore ſeers of rice, two of red paint, fifteen of oil; about twelve rupees muſt be expended in ſpirits, and ſome ſcores of cooking-pots, diſhes, and cups for drinking, laid in, as well as a few peacock's tails, a fan, three bamboos, nine ſcore *natâria*-trees, and ſome red ſtones, which are ground for paint, and alſo ſome charcoal. Thus prepared, the ſuppliant ſends ſtrings, with knots numbering the intervening days, with invitations to his relations and neighbouring chiefs. On the day appointed, ſome thouſands aſſemble, and are variouſly employed. Some

grind the red ſtone for paint, others char coal to mix with oil, while a great number are occupied in ſtripping the bark off the *natária*, which is effected in one piece of four cubits long, by bruiſing it; three bamboos are then made ſtraight by oil and fire, and are of the ſame length with the *natária*-bark; a fat hog, grain, and ſeveral pots of ſpirits, are ſent to the workers. The red ſtone and charcoal being ground, are mixed ſeparately with oil, and a quantity of hog's blood added to both: the barks of the *natária* have about a cubit of the lower end of each blackened with the charcoal, another cubit is left of the natural colour, and above it one cubit is painted red; caps of wood are fitted on the bamboos, and necks made in them: on one of theſe, four ſcore and an half of barks are bound with twine dipped in oil; on the ſecond, three ſcore are bound, and on the third, one ſcore and a half; the heads of theſe three are ornamented with a profuſion of peacock's tail-feathers, thus prepared; they are called *Chumdah Goſſaih*, and carried to the ſuppliant's houſe, where, for the workmen, a hog is dreſſed with grain, that they may be feaſted for their trouble: a hog, two pots of ſpirits, grain, and ſalt, are preſented to every chief, for himſelf and vaſſals, who honours the ſuppliant with his company; as much is alſo given to his own relations, and a like quantity to the relations of his wives, and meat and drink is diſtributed to all aſſembled. The women, who dreſs theſe proviſions, excluſive of their daily hire, have a hog given to them, that they may eat together, as they are not allowed to feaſt with the men.

The *Chumdah*-bamboos having been brought about evening, and placed againſt the ſuppliant's houſe, he and the *Demauno* rub the ends on the ground with oil, and mark them with red paint; when the latter, with a hen's egg and a handful of rice, prays, obſerving

the usual ceremony, that *Chumdah Gossaih* may be propitious to the suppliant, who follows his example, and also makes an offering of a cut hog, which he sacrifices so that the blood may fall on the bamboos; the largest of which, or one with the greatest number of barks pendant to it, he presents to one of his relations; the second in size to one of his wives relations; and the third to any volunteer. The three persons thus favoured, support the *Chumdah* by cloth tied round their waists, and balance them with their hands, dancing as long as they can: when fatigued, they are relieved indiscriminately, without any distinction; and this amusement, with music, continues all night. In the morning the *Demauno* and suppliant pray at the middle supporter of the latter's house, with the usual forms, when a cut goat is brought as an offering, and sacrificed by a relation: hence they repair to his field, taking with them the *Chumdah*, and again pray near the stump of a tree, where a small space is brushed and washed for the purpose, and a branch of the *muckmun* planted, in addition to the egg and rice deposited there by the *Demauno* and suppliant: a shrine for *Kull Gossaih* is washed, rubbed with oil, and paint put on it, and bound with a red silk thread, and placed close to the *muckmun*-branch, when a goat and two hogs are sacrificed by a relation, that the blood may fall or be sprinkled on the shrine *Chumdah* and branch. For this office he gets a rupee and a turban: the offerings being dressed, are eaten with grain: the party having feasted, return, bringing with them the *Chumdahs*, which are carried five times round the suppliant's house, and then placed against eaves, where they remain five days, at the expiration of which, a *seer* of *takallone* is served out to every person who applies for it at the suppliant's house; but four men are stationed at each of the four doors, that every person who goes out with the *takallone*, may receive a blow

with the open hand from each of the four men ſtationed at the door he paſſes out of. At the concluſion of this ceremony the *Bhumdah*-bamboos are taken into the houſe, and ſuſpended from the roof; the ſuppliant repairs to the field, and makes an offering of a hog, and prays at the ſhrine of *Kull Goſſaih*, whence he returns and ſacrifices a goat at the middle ſupporter of his houſe, with prayer: theſe offerings are dreſſed, and, as is cuſtomary, they feaſt on them.

When the *koſarane* (a ſmall grain like what the lowlanders call *collye*) is reaping in *November*, or the beginning of *December*, a feſtival is held as a thankſgiving before the new grain is eaten of. Materials for a feaſt being prepared, a day is fixed by the *Maungy*, who invites the chiefs of the neighbouring villages. On the day appointed, the two men who prayed at the *Chitaria*-feſtival, proceed to *Chalnad* to pray, and ſacrifice a goat, which, with ſome *koſarane*, is an offering at the *Nad* to *Chitariah Goſſaih*. On their return to the village, the *Maungy* has his *kondone* brought out, on which he prays and immolates a fowl. During this, the *dungareahar*, or vaſſals, repair to their fields, offer thankſgiving, make an oblation to *Kull Goſſaih*, and return to their houſes to eat of the new *koſarane*. As ſoon as the inhabitants aſſemble at the *Maungy*'s houſe, the men ſitting on one ſide, and the women on the other, the *Phojedar* preſents a hog, a meaſure of *koſarane*, and a pot of ſpirits, to the *Maungy*, in the name of his vaſſals, by whom theſe had been contributed. On receiving them, he bleſſes his vaſſals, and exhorts them to induſtry and good behaviour; after which, making a libation in the names of all their gods, and of their dead, he drinks, and alſo throws a little of the *koſarane* away, repeating the ſame pious exclamations; which ceremony is the commencement of the feſtivity and drinking that laſts for ſeveral days.

On reaping the *takallone* (*Indian* corn) in *August* or *September*, there is alſo a feſtival. Each man repairs to his field, with either a hog, goat, or fowl, to ſacrifice to *Kull Goſſaih*, to whom he prays; and, having feaſted, returns home, where another repaſt is prepared; and on this day it is cuſtomary for every family in the village to diſtribute a little of what they have prepared for their feaſt to every houſe.

Should any perſon eat of new *koſarane* or *takallone* before the feſtival and public thankſgiving at the reaping of theſe crops, the *Maungy* fines the offenders a cock; which is ſacrificed by the two preachers at the ſhrine of *Chittáriah*.

The mountaineers are repreſented to have in general an amorous diſpoſition; their ſolicitude and attentions, when in love, are ſaid to be unceaſing. If ſeparated but for an hour, the lovers are miſerable; they conceal their meat to preſent to each other privately. The lady dreſſes whatever nice things ſhe can ſecrete from her parents, to treat her lover with; and he preſents her with rings and beads, and treats her with toddy. They go to market, and exchange paun and tobacco; and, on their return, ſhould they perceive an acquaintance, they ſeparate, to avoid being ſeen in company; but by aſſignation ſoon meet again. They retire to ſleep together; but ſeldom are guilty of that indiſcretion which is irreparable, though the fine for ſuch imprudent conduct, which the parties are afraid to conceal, is a hog and a goat to the *Maungy*, who ſacrifices them on the ſpot where frailty made them tranſgreſs, and ſprinkles ſome of the blood on them, to waſh out the ſtain from his land, or rather to appeaſe an incenſed deity, who fails not to puniſh for ſuch abominations. Thus when a virgin is deflowered with her conſent, the blood of the offering is ſup-

posed to atone for their sin. Should the couple agree to come together as man and wife, the *Maungy* proclaims it; and they are immediately considered to be married, without any further ceremony or expence. The man has the option of taking her for his wife: she however has the privilege of demanding a regular marriage, which implies the usual presents, and the time for the wedding is fixed.

Polygamy is allowed. A man may marry as many wives as his circumstances will admit of; that is, as often as he can defray the expences of the nuptials. When he sees a girl whom he wishes to espouse, he sends a friend to her parents to ask her in marriage: they refer him to the lady. Should he obtain her consent, he acquaints the parents, who desire him to return to the suitor, to advise him of their acquiescence, and that he may prepare the usual presents of *poonäte* (beads) and *tubacane* (a ring for the neck) to present to the lady; which being accepted, she is considered as betrothed to him; and he, as soon as he can procure money for the expence of the nuptials, must provide a turban for the lady's father, with one rupee; also a rupee and a piece of cloth for her mother; and a rupee and a piece of cloth for several of the nearest relations. These and the materials for the marriage-feast being provided, a day is fixed, on which the bridegroom, with his relations, proceed to the bride's father's house, where they are seated on cots and mats, and after a repast, the bride's father taking his daughter's hand, and giving it to the bridegroom, he publicly admonishes him to use her well and kindly, and not to murder her; threatening to retaliate: but if she should die a natural death, or by means of the devil, it cannot be helped. On the conclusion of this exhortation, the bridegroom, with the little finger of his right hand, marks the bride's forehead with red

paint; and the ſame little finger being linked with the little finger of the bride's right hand, he leads her out of the houſe to his own. At the expiration of five days, the bridegroom, with the bride, returns to her father's, well ſtocked with proviſion for feaſting, and having paſſed two or three days with their parents, they go home, and the ceremony concludes.

A man dying and leaving widows, his younger brothers, or younger couſins of the firſt and ſecond degrees, or nephews, may receive the widows as wives. If the parties agree on theſe occaſions, the children go with their mother: if the widow prefers returning to her relations, the children under ten years of age go with her, and ſhe is entitled to a rupee and a piece of cloth annually, for bringing them up. When arrived at that period of life, they are ſent to the relation of their father who paid their mother for taking care of them. When a woman has ten children, her eldeſt brother may claim one; the right is acknowledged from cuſtom, though it cannot be enforced. The child thus adopted by an uncle, is treated as and has every privilege of his own children. Should this ſon by adoption arrive at manhood, die, and leave property, it is equally divided between the adopter and the father of the deceaſed.

A man deſirous of marrying a widow, deputes a friend to aſk her in marriage. Should ſhe conſent, ſhe refers him to her late huſband's relations, the neareſt of whom, for his acquieſcence, is entitled to two rupees and a turban. The parents of the widow are next conſulted. Should they approve, they are entitled to ſome trifling preſents; on which the father gives his daughter's hand, exhorting the bridegroom, as related in the deſcription of a marriage.

The red paint is not uſed on a ſecond marriage: a feaſt concludes the whole.

A man cannot marry a relation, though he may marry his wife's ſiſters, except in the inſtance of younger brothers, couſins, and nephews, receiving one each, or more, of their ſenior kinſman's widows, who are treated and conſidered as wives, though there is no expence nor ceremony attending their union.

Should a girl be compelled by her parents to marry a man whom ſhe diſlikes, and ſhould ſhe be unhappy, and leave her huſband, and in deſpair put an end to herſelf, the parents get a court appointed, to enquire how their ſon-in-law behaved to their daughter. If it ſhould appear that he treated her cruelly, he is conſidered guilty of murder, and fined, but not ſo heavily as is common for the commutation of blood. If, on the contrary, it ſhould appear that he behaved well to her, it is deemed ſuicide.

Should a married woman elope with a man, and the party be purſued, ſeized, and brought back, judges are appointed to try the man; who is generally fined one or two ſcore of rupees. The huſband may or may not receive his wife; and the ſeducer has to pay the fine.

A man convicted of having committed adultery, is fined twenty or thirty rupees: he is alſo obliged to furniſh a hog, the blood of which, being ſprinkled on the adulterer and adultereſs, waſhes away their ſin, and, it is believed, will avert divine vengeance: the ceremony ends with a feaſt, and, the parties thus purified, the huſband and friends are reconciled. The adultereſs in general reveals the ſecret; as a ſuperſtitious idea is entertained, that, if concealed,

the inhabitants of the village will be visited by a plague, or that a tiger or venomous animal will destroy them. When any of these happens, it is religiously believed to proceed from the immorality and evil doings of some individual, and as a punishment for some concealed sin; to discover which they have practices, in which they place implicit faith: one is called *Satane*, and is as follows:—A place large enough for a man to sit in, is brushed and washed, in the middle of which a small branch of the *bale*-tree is planted, and a person sits opposite to it; another supplies him with a few grains of rice, on a *bale*-leaf, some of which he throws on the branch, the remainder he is to eat; the person who gave it to him repeating, that he is to swallow it in the names of all the inhabitants of the village; in which should the sinner be, it is believed *God* will make him throw up the rice. Should this happen, he is next to eat some in the names of families, and again in the name of all the individuals who compose that on which the *Satane* proof falls. Another is called *Cherreen*, and is thus:—A stone is suspended to a string, which, it is believed, will be tossed to and fro, on the name of the village, family, and offender. The third is called *Gobereen*, and is of a more serious nature than the two former. A pot with some cow-dung, oil, and water, is put on the fire; when boiling, a ring is thrown in; each person approaches to take out the ring, calling on *God* to protect him if innocent, and to burn him if guilty. On this trial, it is believed the innocent will escape unhurt in taking out the ring, and that the guilty person will be severely burned, without being able to put his hand into the pot, as the mixture, it is said, will boil up to meet his hand.

When a married man has been detected in committing fornication, his wife or wives may insist on a

hog or goat being ſacrificed, to ſprinkle the blood over him. Being thus purified, it is believed this ceremony expiates divine vengeance, which would ſooner or later alight on him or ſome of his family, for this ſin.

Witchcraft and ſorcery are moſt firmly believed; and accidents or diſeaſes which elude their little ſkill in medicine, are attributed to ſome perſon ſuppoſed to be ſkilled in theſe arts, who has bewitched them. When ſuch a conviction is admitted, the *Cherreen* is conſulted, and again the *Satane*, both repeatedly, till ſome perſon be named. To confirm this ideal proof, which is received as infallible, an ordeal is undertaken; and on the part of ſuch perſons (ſuppoſed to be bewitched) five men are employed who are qualified and acquainted with this mode of trial. Such as are born immaturely cannot be engaged in it. Theſe five proceed to a retired place on the banks of a river, before day-light, taking with them wood of a particular kind, and make a fire to heat an iron: one of theſe is to touch the iron when red hot with his tongue, but is firſt to bathe. While he is performing his ablution, the others heat the iron: when red hot, a little rice is thrown on it, in the name of the perſon accuſed of witchcraft, and *Birmah*, the God of Fire, exhorted to do juſtice. If it conſumes, he is conſidered guilty; if not, not: The *Tátoo*, or perſon who touches the iron, keeping one foot in the water, puts the iron to his tongue, and muſt repeat it as often as nine times, if the firſt and ſecond touch does not burn; which however cannot happen. On the *Tátoo* being burned, the party return before ſun-riſe; and, on their approach to their village, the friends of the ſick perſon are called out to ſee the *Tâtoo*'s tongue. The perſon accuſed may object to the trial, and inſiſt on its being held over again, that two perſons may go, on his part, to wit-

neſs it. On this proof, the unfortunate perſon is ſeized and puniſhed, till he or ſhe acknowledges the crime. It muſt be alſo told who inſtructed him, or her, in the practice of this evil art. The *Chouraga*, or warlock, is now brought to the ſick perſon, to exorciſe him from his ſpell. Should he recover, the *Chouraga* is compelled to pay one rupee to him, one to the *Maungy* of the village, one to the four perſons who witneſſed the ordeal, and eight annas to the *Tâtoo*. On the other hand, ſhould he die, the *Chouraga* muſt either ſuffer death, or redeem his life (at the option of the friends of the deceaſed) at the price eſtabliſhed for the commutation of blood. Again, the friends of the *Chouraga* may retaliate on the perſon whom their relation accuſed of having inſtructed him in ſorcery.

It is not uncommon for two neighbours to agree, when their reſpective wives are pregnant, that the offspring, in the event of there being a boy and a girl, ſhall be married to each other. On theſe occaſions, the ceremony may be performed when the parties are about eight or ten years old. Should the father of the girl violate the engagement, and give his daughter to another perſon, the father of the boy will obtain a fine equal to the expence of a marriage, which is rated according to their circumſtances: whereas, ſhould the father of the boy, notwithſtanding his contract, marry his ſon before he has performed his part, the father of the girl is entitled to a fine of a turban and one rupee: after which it may ſtill be performed or not, as the parties mutually agree.

When a woman is in labour, four or five of her relations and neighbours aſſemble to attend her; among theſe, the moſt experienced does the duty of a midwife. The woman keeps her houſe for five days,

and her huſband attends her; during which he muſt not enter any perſon's houſe or field, nor until he and his wife have waſhed their clothes and bathed. On this day the child is named by the father; but, if he be not preſent, the mother gives a name; however, this name may be changed before the child is weaned. After this they go out as uſual. The women who attended her in child-bed are entitled to a feaſt, are anointed with oil, and their foreheads painted red. A piece of cloth is given to the one who performed the office of a midwife; and a little grain, or ſome other trifling acknowledgement, to the others for their friendly aſſiſtance.

When a child dies that is not weaned, the father ſends a friend to his *Maungy*, to ſolicit ground to bury the body; which being complied with, the corpſe is carried to the grave, in a place allotted for public burial, and interred with its head to the north. For infants of this deſcription, no further ceremony is obſerved; but when a child dies that has been weaned, at the expiration of five days, the relations and neighbours are invited to a feaſt called *Boge*, which being prepared, the father, or neareſt male relation, takes a little of every thing that may be dreſſed, and proceeds to the road leading to the burying-ground, where he throws them away, in the name of *God* and the deceaſed; the intention of which is to avert the like misfortune in future: and, returning to his houſe, the company are feaſted, all obſerving the ſame cuſtom of throwing away a little, in the name of *God* and the deceaſed, previous to eating. Another entertainment, ſimilar to this, is given at the expiration of a year, and, annually, at the thankſgiving for reaping the *takalloo* and *koſarane*. Some of each of theſe grains are thrown away, in the name of *God* and of the deceaſed.

When a child is ſtill-born, the body is put into an earthen pot by the women who attend, and covered with leaves; the father carries the pot into the jungles, places it near the ſtem of a tree, and covers it with ſome bruſh-wood, where he leaves it; and there is no further ceremony.

The corpſe of a perſon dying of the ſmall-pox or meaſles, is taken with the bed-ſtead into a jungle about a mile from the village, and placed under the ſhade of a tree, where the body, the bed-ſtead, and clothes, are covered with leaves and branches, and left. Thoſe who attend the funeral, bathe before they return to their homes. At the expiration of a year, the relations, being prepared for a feſtival, proceed out of the village on the road leading to where the body was placed, with all whom they invite; where one of the kinſmen having prayed, and thrown away a ſmall portion of the feaſt, and made a libation in the name of the deceaſed, the party aſſembled partake of it, and return. The bodies of moſt others, dying a natural death, are buried; and the cauſe aſſigned for diſpoſing of the bodies of thoſe who die of the ſmall-pox, as deſcribed above, is a ſuperſtitious idea, that ſuch an act will avert any further fatality; whereas, if buried, it will continue to rage, and carry off every inhabitant of the village; which is reported to have happened formerly.

When a young man, or virgin, who is marriageable, dies, the father, or neareſt relation, ſends a friend to ſolicit four cubits of ground, to bury the deceaſed, from the *Maungy*; who aſks if the relations propoſe putting the bed-ſtead into the grave with the body; in which caſe a rupee is paid to him for the purchaſe of a hog. No time is loſt in carrying the body to the burying-ground, where a grave of a foot and a half, or two feet deep, being dug north and

ſouth, the head is placed towards the former point; the body is covered with pieces of green wood laid acroſs it; after this ſome long graſs, and then the earth which had been taken out, is thrown over the graſs: to conclude, ſmall ſtones are laid to encompaſs the grave, and a few over the middle of the body. No women or girls are allowed to go to funerals, nor are prayers ſaid. On the return of the party, it is cuſtomary for the whole to waſh their legs and arms previous to entering their houſes.

The hog which the *Maungy* had purchaſed with the rupee that was paid for permiſſion to depoſit the bed-ſtead with the corpſe, is ſacrificed by him. The liver being taken out and roaſted, the *Maungy* takes a ſmall bit, and caſting it away with ſome of the blood, in the name of *God* and of the deceaſed, the remainder is divided among ſuch men as may be preſent, who repeat what the *Maungy* had ſaid, throwing a little away before they eat. After this repaſt, the carcaſe is divided; the *Maungy* ſeparating a fore-quarter for his family, ſhares of the remainder in propartion with every inhabitant in the village. At the expiration of five days the *Boge* is obſerved; and every family in the village, or as many as the relations can entertain, are invited. When the father has performed the ceremony of carrying a little of every thing that is dreſſed, with ſome ſpirits, provided ſolely for the purpoſe of a libation, to the road leading to the burying-ground, and there caſt them away in the name of *God* and of the deceaſed, the company aſſembled are all ſerved, whether male or female, old or young, on ſeparate leaves; and each, previous to eating, obſerves the ceremony of throwing ſome away, as already related. Another *Boge* is held at the expiration of a year, differing only from the former in the free uſe of liquors. At the annual thankſgiving for the reaping of the *takal* and *koſar*, ſome of each is thrown away,

in the names of the deceaſed kinſmen, for one or more years, according to the degree of propinquity and eſtimation in which each was held: it however ceaſes at any time that the ſurvivors remove from the village in which their kinſmen died.

When a chief of opulence and high rank is dangerouſly ill, he orders his relations, male or female, and vaſſals, to be aſſembled: as ſoon as they attend him, he informs them of his ſituation; and, as they will obſerve he has not long to live, he deſires them not to grieve, but to be comforted, and points out the ſon whom he wills to be his ſucceſſor. Here primogeniture has no preference: if he be a ſon, he muſt ſucceed*, a daughter cannot; though an idiot, it is to be underſtood his right; and ſome near kinſman is named by the dying man to be his ſon's guardian: to him he bequeaths his territories and fortune (though certain ſums or parts are to be diſtributed) and deſires them to look to him for protection. On his death a drum is beat, to announce it to ſuch as are at a diſtance, that they may attend to ſee the body; which is not removed before the vaſſals collect together, to be witneſſes of the fact; it is then carried without the village, cloſe to which it is interred on the bed-ſtead, in the ſame manner as related of a young man's or virgin's funeral. A piece of ſilk is ſpread over the grave, and ſtones placed ſo as to prevent the wind blowing it off: a hut is erected to ſhelter it, and, round the whole, a fence of bamboos of ſtones. The mourners, on their return,

* In ſome of the *tuppahs*, a ſon may be ſet aſide, and the ſucceſſion may be bequeathed to a brother, as is now the caſe in *Munnecarry*: the preſent chief, brother to the late *Maungy*, who left a ſon a minor, ſucceeded by deſire of the deceaſed, and received his brother's widows as wives.

obſerve the uſual oblation, and are feaſted; but throw away ſome of whatever they have to eat or drink, in the name of *God* and of the deceaſed, previous to taſting it. All who come are thus treated in ſucceſſion for five days, when the firſt *Boge* is kept; when the only difference between it and that of a *Dungarria*, or vaſſal, is the greater expence from a concourſe of relations and adherents aſſembling, and that ſpirits are provided for them. At the feſtivals for reaping the *takál* and *koſar*, ſome of each is thrown away on the road leading to the grave, as already deſcribed. At the expiration of a year, the chief's relations and vaſſals being invited for their ſecond *Boge*, the *Demauno* and the heir pray at his door for the deceaſed, when all aſſembled partake of the feaſt, with the uſual ceremony: at the concluſion of this the fortune and goods of the deceaſed are divided; the heir taking one half, the other is equally divided among the ſons, brothers, and nephews by the brother's ſide. Nephews by ſiſters do not ſhare; the widows may, if the parties agree, or go with any of their late huſband's younger brothers, or nephews by the brother's ſide, as wives. If however the parties do not agree to come together, the mother of the heir has the option of remaining with her ſon, or of returning to her relations; the other widows muſt do the latter.

When a married woman dies, the widower obſerves the uſual *Boge* at the two ſtated periods: he is not allowed to marry before the performance of the ſecond, or at the expiration of a year; and it is cuſtomary to preſent the neareſt kinſman of his deceaſed wife with one rupee and a turban; after which he may eſpouſe as many wives as he pleaſes, or has fortune to maintain.

The body of a perſon who dies of a dropſy (*Narat*) is carried and thrown into a river; if buried, it is apprehended the ſame diſorder would return, and infect and carry off the other inhabitants. The funeral party having caſt the body into the water, proceed to another part of the river to bathe, and there, having brought a fowl and ſome *takâl*, or rice, ſome of each is thrown into the water, in the name of *God* and of the deceaſed, by all who are preſent, before they eat. This is the only *Boge* which is obſerved for perſons dying of a dropſy, though, at the thankſgiving for reaping the *takalloo* or *koſar*, ſome of each is thrown away in their names.

When a perſon has been killed by a tiger, the body or any part of it that is found, is covered with the branches of trees. On the fifth day the relations of the deceaſed, with a large party, proceed to the place where the remains of their kinſman lay, taking with them a new earthen veſſel, a goat, and ten or fifteen ſeers of *takâl*, or rice. Being arrived at the ſpot, one of the neareſt relations prays for the deceaſed, in which he is accompanied by the *Demauno*; at the end of their prayers, the former ſcatters ſome grains of rice, and cuts off the head of the goat, naming *God* and the deceaſed. The moment he ſevers the head, he ruſhes into the midſt of the party, who ſurround him; the *Demauno* at the ſame time ſeizes the head of the goat, ſucks the reeking blood, and is ſuppoſed to become frantic: he caſts the head from him and ſprings after it, endeavouring to imitate the tiger, and making a hideous noiſe as like that beaſt as he can: he looks about for the preacher, whom it is the buſineſs of the party to conceal, and prevent his touching. Should he in his exertions accompliſh this, a ſuperſtitious opinion is entertained that the poor preacher will infallibly fall a ſacrifice to a tiger. When the *Demauno* is well

wearied by his pranks, the head of the goat is put under ground in the earthen veſſel; this ſpeedily reſtores his reaſon, and the preacher comes out in ſafety. The party thence retire to a ſmall diſtance, have a feaſt, and return to their homes. At the expiration of a year, the ſecond *Boge* is held for the deceaſed in the ſame manner as for any other relation, and the ſame attention is paid to his memory on reaping the *takalloo* and *koſar*.

When any perſon dies of the *Moogdo*, or *Kory*, a diſeaſe in which the extremities decay and drop off, the body is buried with the uſual ceremony, and the *Boge* is twice obſerved as uſual, at which every ſort of fleſh, except goats, may be eaten: fiſh is alſo forbidden. In that diſeaſe goats fleſh and fiſh are not allowed to the patient, which is the cauſe of their being forbidden at the *Boge*.

Such as die of an epilepſy, are buried with the uſual ceremonies; at their *Boge* hogs fleſh is forbidden, becauſe thoſe who are ſubject to the epilepſy are not allowed to eat it.

Perſons who are killed, and ſuicides, are buried with the uſual ceremony above recited.

When a *Demauno* dies, his body is carried into the jungles and placed under the ſhade of a tree, where it is covered with leaves and branches, and left on the bed-ſtead on which he died. The objection to interring his remains is a ſuperſtitious idea, that he becomes a devil, and that, if buried, he would return and deſtroy the inhabitants of the village; whereas, by placing the body under a tree, he is thus compelled to play the devil in ſome other. The uſual *Boge* ceremonies are obſerved, but cow's fleſh forbidden to be eaten at them. Should a *Demauno* eat

of it, *God* in his wrath would cauſe all his functions to fail in their effect.

It ſometimes happens that very old men, when they are very dangerouſly ill, deſire their deſcendants and relations to be aſſembled, to whom they give directions about the diſpoſal of their body; that is, if they wiſh not to be buried, ſome direct their remains to be placed under the ſhade of a tree, while others order them to be thrown into a river. Their will in this reſpect is ſtrictly attended to, and the two *Boge* ceremonies are obſerved.

Before the chiefs of the hills put themſelves under the protection of the *Engliſh* government, wrongs and injuries committed by the inhabitants of one village on that of another, were in general decided by the ſword; but diſputes and differences, whether with regard to property or otherwiſe, between inhabitants of the ſame town, were always ſettled by the *Maungy* and his officers: the firſt of them in rank is the *Cutwal* (who is the chief's deputy) next the *Phojedar*, and laſtly the *Jemmadars*, who have a certain number of men under their authority, to inſpect the conduct of the inhabitants, and report it to the *Phojedar*; to theſe, old and experienced men were added, and uſually called in to aſſiſt, when the ſubject of litigation was of importance: at preſent, none but trifling diſputes are ſettled by thoſe officers; for murder and all capital crimes, the delinquents are brought to *Bhágalpore* or *Rajamahall*, to be tried by an aſſembly of the chiefs, agreeably to the engagements entered into by Mr. *Cleveland* with the head *Maungies*. Though the *Maungies* of all the villages alſo aſſemble on theſe occaſions, none but the *Sirdar Maungies*, or chiefs of *tuppahs*, and their *Naibs*, or deputies, ſit in judgment. On paſſing ſentence, it is cuſtomary for them to aſk the inferior *Maungies* if

the decree be not juſt. Should theſe queſtion it, another examination takes place, when the deciſion may be the ſame, or amended.

I have been preſent at ſeveral of theſe trials. The forms obſerved, were firſt to ſwear in the judges according to their faith: this being peculiar, their various ways of taking an oath may not be thought unworthy of deſcription. The hill-word *Deeben*, is an oath. There is no particular officer for adminiſtering oaths; any perſon may do it. The form in general uſe at theſe trials, is, for a mountaineer to put a little ſalt on the blade of a *Tulwar*, or ſcimitar, when he ſays, "if you decide contrary to your judgment, and falſely, may this ſalt be your death." The perſon ſwearing having repeated this imprecation, and applied it to himſelf, the part of the blade where the ſalt is, is held above his mouth, which he opens, and it is waſhed off into his mouth with ſome water, that he may ſwallow it. Thoſe who, from indiſpoſition or infirmity, do not like to ſwallow the ſalt, repeat the oath, putting their hand on two arrows fixed tranſverſely in the ground, at about a cubit's diſtance, with ſome ſalt between them. On ſome occaſions, a man ſwearing, repeats the oath with his hand on a ſword; while others repeat it, laying hold of any perſon's hand: and all theſe forms are conſidered equally binding. Next, the commitment and charge are read and explained by the collector's officer in his, the collector's preſence; then the delinquent muſt ſtate his defence or confeſs his crime, ſitting on his hams; after which the *Maungy* and *Phojedar* of the village where it was committed, declare what they know of it. Here the criminal is apparently his own accuſer, by never deviating from truth; the vice of lying being conſidered an aggravation of any crime; but I have known the accuſed refuſe to ſpeak; for lying has not obtained

much among these highlanders. A man convicted of falsehood, or who violates a promise, is called *passiary*; the meaning of which is, a person to whom no credit is due, though he should even speak truth, and whose professions or promises are not to be depended on. Such a person is not admitted on any arbitration, or on any committee to settle trivial differences.

Formerly, when a man of one village had a claim upon an inhabitant of another, it was not uncommon, if the latter denied it, and refused to have the matter brought to trial, for the complainant to apply to the chief of his village, to unite with the heads of one or two others, to whom presents were made in proportion to the nature of the dispute, to form a junction with all their vassals to plunder the village where justice was denied, and to carry off the offender: the division of the booty was according to the rates allowed the *Maungies*, their officers, and vassals. In such troublesome times much was not taken, as all property, not of immediate use for domestic purposes, was usually concealed; the chiefs could therefore only have the first choice of the utensils and apparel which fell into their hands. The relations and chief of the village from which the captive was taken, after some time were wont to send a present to the complainant, acknowledging the demand; and promising to abide by the award which arbitrators should give, on his being released; these conditions were complied with, the prisoner was enlarged, and he and his relations had to make good the loss sustained with the inhabitants of the plundered village, as well as to pay the costs of the arbitration.

It sometimes happened on such occasions as the above, that the inhabitants of the village intended

to be plundered, got intelligence of the deſign, and the cauſe of it; on which it was uſual for the *Maungy* to call on his vaſſals, to anſwer the accuſation: if he acknowledged it, an ambaſſador was diſpatched to the complainant, deſiring him to deſiſt from his intention, and to name arbitrators, that juſtice might be done: on the other hand, if the charge was denied, and the accuſed exhorted his chief to ſtand on the defenſive, with an aſſurance that he would either prove his innocence, after the invaſion, or make good the loſs ſuſtained on both ſides, the vaſſals were aſſembled and ſtationed to guard every avenue leading to the village. Night-attacks were moſt common; but theſe precautions were in general ſufficient to induce the aſſailants to defer a ſcheme which was merely to plunder, and, as long as the defendants were alert, nothing was attempted; the invaders therefore kept in their neighbourhood, and, when they were haraſſed by watching, the party advanced, and a man was ſent forward to ſcatter a ſoporific duſt to windward of the village, which, it was believed, would put every inhabitant in it to ſleep in leſs than an hour after dark. In this perſuaſion they ruſhed on to plunder, and, carrying off all that was valuable, retreated; ſoon after which a deputation was ſent from the deſpoiled village, deſiring an arbitration to be appointed, to try whether the accuſation was juſt which was alleged againſt the inhabitant of it: if proved, he was bound to make good the loſs ſuſtained, as well as to commute the lives that might have been loſt on both ſides: on the other hand, if acquitted, all this fell on the accuſers.

When a man by accident killed one of his brother ſportſmen in hunting, it was cuſtomary for the party to carry the body to the village; where the relations of the deceaſed, having declared the party had no right to ſlay their kinſman, ſet out and im-

plored the aſſiſtance of a neighbouring *Maungy* with his adherents, to obtain juſtice: having ſucceeded, they returned in force to plunder the homicide's houſes, and took eatables from every houſe in the village: at the concluſion of this violence, the ſerdars of the village aſſembled to ſit in judgment on the part of the hunters, whilſt thoſe of the aſſailants met them, on the part of the kinſman of the deceaſed. The ſentences on ſuch occaſions were ſeldom leſs than ten or twelve ſcores of rupees, as a commutation for the blood of the manſlayer, two-thirds of which ranſom he had to pay, and the remainder was recovered from the party of hunters. When the above fine was realized, another complaint was made by the relations of the deceaſed to the *Maungy* of the village to which he belonged, claiming ſome conſideration for the children which he might have begotten had he lived. Judges being appointed to examine the ſecond demand, the fine was about two or three ſcores of rupees from the homicide.

When a woman had poiſoned her huſband, and confeſſed the fact, judges were appointed to ſettle a juſt retribution; ten or twelve ſcores of rupees were commonly adjudged, and the ſum was recovered from the woman and her relations, to whom ſhe was returned.

A perſon convicted of ſtealing cloth, was not fined more than five or ſix rupees, and a turban; yet the thief, by praying for an abatement of this, was in general let off, on paying one rupee, and producing one hog and a turban.

When an orphan, who had no relations or property, was convicted of ſtealing money, grain, or cloth, he was compelled to reſtore the ſtolen goods, and

flogged and difcharged. Judges were not appointed for fuch a trial, as the accufed was fuppofed neither to have property nor friends to pay the fine for him.

When grain had been ftolen, and the thief unknown, the *Cherreen* was firft reforted to: whether this was fuccefsful or not, the *Satane* was next tried to confirm the difcovery which might have been made by the *Cherreen*, or to find the thief by it if the *Cherreen* had been unfuccefsful. In the event of both failing, or on their being firmly denied by the accufed, he was compelled to attempt the *Gobereen*, which was deemed unerring. On fuch flender proof the accufed was feized and punifhed, till he acknowledged the theft, and declared whether any perfon advifed him, or was an accomplice: he was then fet at liberty, and judges were appointed by the *Maungy* of the village to inquire what damage had been fuftained; which the accufed was obliged to make good, and to fine him according to the nature and extent of his crime. On thefe occafions the fines were heavy, to deter others from committing fimilar offences.

When a chief had killed a poor man, the officers of his own village, and thofe of a neighbouring village, were affembled, with fome fage old men for the trial. Should the fact be eftablifhed, the relations of the deceafed might refufe a commutation for the blood of the murderer; in which cafe he was delivered up to them to be put to death, and his kinfmen had to pay the expences of the trial. The ranfom was in general ten or twelve fcore of rupees; but the relations of the deceafed had the option of remitting the fine, and of pardoning the murderer.

All applications to a chief to apprehend any perſon in a civil cauſe, and to appoint judges for a trial, are accompanied with a fee; and any perſon borrowing money for that purpoſe, is compelled to pay two rupees for every one ſo borrowed, at the iſſue of the ſuit, whether he gains it or not.

A chief has no more right to ſtrike a poor man than the latter has to ſtrike him: the crime and puniſhment in either caſe is equal. Should a chief without provocation ſtrike a poor man and draw blood, the latter complains to the *Cutwal*, who with the *Phojedar*, and ſome old men, being aſſembled, and having heard the complaint, they depute an agent to their chief, to require him to anſwer the charge; which being acknowledged, the agent returns, and informs the court that the offender confeſſes his crime: the complainant then demands a certain ſum for reparation, and the agent ſets out to the offender, who, on begging a remiſſion of the fine, in general gets off by furniſhing a hog; which being killed, the blood is ſprinkled on the wounded perſon. A ſimilar misfortune is thus ſuppoſed to be averted, and the parties reconciled, the aggreſſor paying the expences of the trial.

Should a man borrow ſome *koſarane* for ſeed from another, and refuſe to pay for eight or ten years, and till he is compelled, the lender, on eſtabliſhing the loan before judges, will receive three rupees for each ſeer that is due to him

The ſame penalty is levied from thoſe who refuſe to repay a loan of *takalloo*.

Whoever accuſes a man of committing inceſt with his mother, on proof of ſuch abuſe before a jury, will be fined a rupee for the complainant, and a hog for a feaſt to the judges.

Should a man, who is ſober and walking about, touch another who is aſleep, or ſitting, with his foot, the aggreſſor will be fined a rupee for the complainant, and a hog for a feaſt.

A perſon committing the ſame offence while drunk, is let off on giving a fowl to the complainant.

Should a man who is intoxicated, by day light, and willingly, vomit on another, on conviction before judges, he will be fined a turban and one rupee: ſhould he however, from its being dark or otherwiſe, not ſee the perſon, he is forgiven.

Should a man ſeize aad cultivate a field which his neighbour had begun to clear, this offence not being cognizable before judges, the latter imprecates divine wrath, that nothing may grow on it. It is believed that his prayers will be attended to, and that the produce will be ſmall comparatively with former years.

If two men quarrel, in their cups, and blood be ſhed,—when ſober, judges are appointed, and the perſon who cuts his antagoniſt is fined a hog or a fowl, the blood of which is ſprinkled over the wounded perſon, to purify him, and to prevent his being poſſeſſed by a devil: the fleſh of whatever has been ſacrificed is eaten, and a feaſt reconciles the combatants; but, if the men quarrel while ſober, and one be wounded, judges are appointed, and, excluſive of a hog or fowl for the purpoſe above deſcribed, the perſon who drew blood from his antagoniſt is fined one rupee, and a hog for the *Maungy* of the village, and, at the diſcretion of the judges, is compelled to pay a fine to his wounded antagoniſt.

Should a man, by design or accident (in carrying fire) set fire to a jungle, whatever loss is sustained by the flames spreading and burning grain, or mens property, he must make it good. If a town should be set on fire by accident, and the whole be burned, the person who accidentally caused the loss is not fined, because the loss sustained would be too great for one person or family to defray; but, if only one or two houses should be burned, the offender and family are obliged to make entire restitution.

If a man be detected by a woman, sitting on her cot, and she complains of the impropriety, and demands a fowl as a forfeit, he complies; but she returns it: on the other hand, if a man detects a woman sitting on his cot, and he complains and demands a fowl, she must produce it, and he kills the fowl, sprinkling the blood on the cot to purify it: the woman is then pardoned.

Women at certain times are considered impure: should one in such a condition touch a man by accident, even with her garment, he is defiled; and for this offence she is fined a fowl, which is sacrificed, and the blood is sprinkled on the man to purify him. Women at such times may talk to men, but not touch them. A man, whose wife has that impurity, must not himself during that period sit on a chief's cot; for so doing the fine is a fowl, and the blood is sprinkled on the cot to purify it. He must not even eat or partake of any thing at a festival during such period of separation; and any person detected in this offence, must pay the expence of purification from this pollution by another festival, to be held for that purpose at his expence.

When a party are assembled to go a hunting, and have arrived at their ground, the *Cherreen* is

held to ascertain which of the party will be most acceptable to the God of Hunting, to return thanks for the success they may have; two hens eggs are given to the persons named. This ceremony over, some are stationed at the skirts of the wood, while others scour to drive the game to them. On their killing either a hog or a deer, the preacher breaks one of the eggs on the tooth of the animal, and throws the contents on its head, at the same time returning thanks to *Autgha*, the God of Hunting. This is observed on the death of all large game. On their return home with their game, the heads, the tails, and flesh on the inside of the loins, being separated, are considered sacred; and women are not allowed to taste of these parts; but the hunters feast on them, and the rest (one hind quarter being first given to the fortunate sportsman for his share) is equally divided among the party for their families. When the hunters have finished their repast, the one who killed the game sacrifices a fowl to *Autgha*, the blood of which is shed on the fore-teeth of the game, with thanksgiving to the God; and the preacher, having cut up the heart, that the blood of it may fall on his bow and arrow, breaks an egg on it, praying again to *Autgha*.

Should a woman privately eat of those parts of which they are forbidden to taste, the mountaineers believe that *Autgha* will be offended, and prevent their having any success in hunting on any future excursion; and, if they do not happen to kill some game, the failure is attributed to the above cause; and the *Cherreen*, or suspending a stone to a string, is resorted to, to discover the offender, who, on such doubtful proof, is fined a fowl; which, being sacrificed to *Autgha*, the God is thus supposed to be appeased, and will be propitious to them on the next hunting party.

If a hunter goes out alone, and wounds ſome game, and returns for aſſiſtance to find and bring it home, thoſe who go with him are entitled to one half.

When it is found that wild boars or other game have been in a cultivated field, the owner leaves a road for the beaſts to return, and erects a ſtage to watch their coming at night. Should he wound any, he repairs to his village to announce his ſucceſs, and to beat up for volunteers to aſſiſt him in aſcertaining which way the game went, that they may know where to find it in the morning. They are directed in this by the groaning of the animal, which cannot run far, the poiſon which they uſe on their arrows being of a moſt ſubtile nature; yet its being of ſo fatal and noxious a quality does not prevent their eating the game, after cutting out a large piece of the fleſh round the arrow, which is thrown away. I heard an inſtance of a man's eating that part, and dying ſoon after. A ſportſman who goes out alone, keeps half of whatever game he kills; the remainder (after the *Maungy* has taken ſeveral joints of the chine) is divided among the inhabitants of the village.

A ſkilful and fortunate ſportſman, who gives up all his time to hunting, daily kills more or leſs. When ten or twelve ſcore heads of game have fallen by his ſkill, it is cuſtomary for him to take all the teeth and horns to a convenient place for prayer, and to ſacrifice a hog over them to *Autgha*, the God of Hunting, who ſometimes favours the huntſman, by drawing ſome game within view of the feſtival, that he may ſally forth to kill it; and whatever his ſucceſs may be on this occaſion, it is conſidered as an addition to his offering, and accordingly

eaten on the ſame altar. It is to be obſerved, that every ſacrifice to their God is eaten.

When a hunter wounds game which he cannot find, he returns home to collect his friends to go in ſearch of it: in the interim, ſhould any perſon or perſons pick it up, carry it off and eat it,—on detection, they will be fined by the judges five rupees and as many hogs; though the complainants in general let ſuch offenders off, on their delivering one rupee and one hog.

Dogs that will hunt are held in eſtimation by the mountaineers; and any perſon killing one, is fined ten or twelve rupees.

The penalty for killing a cat is whimſical: a perſon guilty of it muſt collect all the children of the village, and diſtribute ſalt among them, that he may avert divine vengeance.

It is related that a man, ſitting with another, obſerved his companion's clothes on fire, and that, for informing him of it, the latter demanded a fowl, to ſhed the blood of it on his burned clothes for his friend's officious kindneſs, obſerving alſo that the clothes were his; and that he had no buſineſs to ſay any thing about them. This practice is now obſolete as far as regards the exaction of a fowl; but the circumſtance is related to this day.

Hoſpitality is conſidered as a virtue; and when a relation or man of rank comes to ſee his friend, he is kindly received, and treated as ſumptuouſly as the ability of the hoſt will admit of. Strangers travelling are well received; a houſe and bedding is allotted them, and the inhabitants contribute to

furniſh them with as much proviſions as they can eat.

When a peaſant waits on his chief to repreſent any grievance, having made his *ſalam*, he is not of himſelf to enter on the ſubject of it, unleſs he is deſired, as his chief may be then thinking of buſineſs of importance, when it would be improper and diſreſpectful to interrupt him; but due attention is always paid to the complainant.

A peaſant does not ſit in the preſence of his chief without being deſired to do ſo; and reſpect requires that he ſhould decline it two or three times before he obeys, taking care to ſit at a good diſtance. When buſineſs leads them to their chief, it is cuſtomary to have him previouſly adviſed of it. A man who has buſineſs, if he has any penetration, will obſerve at a diſtance what humour his chief is in, before he approaches him. If he ſhould ſeem pleaſed, they think it right to embrace the moment, keeping at a reſpectful diſtance and advancing but a ſtep or two as deſired; but if he is in an ill-humour, the complainant generally defers his ſuit. It is conſidered diſreſpectful in an inferior, even to enter a chief's houſe without being invited. When a chief viſits another chief, the gueſt is always deſired to ſeat himſelf firſt.

In addition to the foregoing account, a few general remarks may neither be deemed ſuperfluous nor unneceſſary. The natives of theſe hills are moſtly very low in ſtature, but ſtout and well proportioned. To find a man ſix feet high, would, I believe, be a phenomenon: there are many leſs than four feet ten inches, and perhaps more under five feet three inches than above that ſtandard. It may not however be far from the truth to conſider that as the

medium ſize of their men. A flat noſe ſeems the moſt characteriſtic feature; but it is not ſo flat as the *Caffres* of *Africa*, nor are their lips ſo thick, though they are in general thicker than the inhabitants of the neighbouring plains. I ſhall not pretend to ſay whether they ought to be conſidered the aborigines or not: as they have no letter, figure, or hieroglyphic; all accounts of their anceſtors are oral. It will however be remembered that they conſider themſelves deſcended from the eldeſt of the ſeven brothers who, according to their tradition, peopled this earth, and who was an outcaſt for receiving his portion of every thing eatable on an old diſh; that the hills in the diſtricts of *Bhaugulpore* and *Rájamahall* were allotted for him and his deſcendants: theſe being rather unproductive, and their wealthy neighbours refuſing to aſſociate with them, they had no alternative but that of plundering. Theſe cauſes are aſſigned for their remaining in barbarous ignorance. In numbers, the hill-language has only words for one and twó, which are variouſly expreſſed, as applied to different ſubjects: they however uſe the *Hindu* words in counting from two to twenty; and, when reckoning any thing which exceeds that quantity, they begin again at one, numbering by ſcores. Of their manufacture and commerce little can be ſaid. The ſmall and common *Hindoſtany* bedſteads are made by the highlanders, and brought down for ſale, with the wood-work of ploughs rudely ſhaped. Wood for various purpóſes, as well as for fire, with charcoal, and planks ſhaped with a hatchet (probably that they may be more portable) are alſo brought down for ſale; to theſe, bamboos, cotton, honey, plantains, ſweet potatoes, and occaſionally ſmall quantities of grain, may be added, and will, I believe, include all the articles, which they barter for their few wants from the plains; ſuch as ſalt, tobacco, rice for the purpoſe of their worſhip,

cloth, iron heads for arrows, hatchets, crooks, and ſuch iron implements as they may have occaſion for. I may add, that they have no manufactures: except the bed-ſteads, there is nothing made in the hills: they are even indebted to their neighbours on the plains for earthen pots. Salt and tobacco are their principal wants; for, in deſcribing ſuch hill-villages as are neareſt market-towns, or ſuch as have *hauts* on the plains, it is common to ſay, ſuch a hill-village is ſupplied with theſe articles by ſuch a town on the plains. Thus their trade is confined to a very narrow compaſs. Cultivation is in as unimproved and rude a ſtate as it well can be, and ſeldom more extenſive than for the immediate conſumption of the cultivator and his family. The women as well as men work in their fields. The bringing of wood and water for all domeſtic purpoſes, cooking, cleaning, arranging all houſe-affairs, belong to the former; and they are alſo employed in carrying wood, bamboos, and other things to market on the plains, to exchange for ſalt and tobacco. Hence it appears that the greateſt ſhare of labour falls to the women; and a man is rich in proportion to the number of his wives, who are ſo many labourers. There are two ſorts of ſoil which the mountaineers cultivate, the one a black earth, which is eſteemed the beſt; the inferior, called red, is ſtiff, and of the nature of clay. Where there is earth ſufficient for the purpoſe of cultivation on the ſides and tops of hills, the trees, with which theſe hills are well covered, are cut, leaving pretty large ſtumps; and ſuch as cannot be conveniently moved, or are wanted, are burned where they fall, in the places ſo cleared. Holes are made from three to four inches deep, with a piece of hard wood pointed, in the middle of *June*, or ſetting in of the rains: in each of theſe, two grains of *takalloo*, two of *koſarane*, two or three of *láhary*, and from five to ſeven of *naito*, are thrown in, when they are filled with earth. Theſe holes are not made nearer

than a cubit and a half; if lefs ſpace were left, the grain would be too thick, and not ſo productive.—*Koppai*, *gungarea*, *mooto*, and *koodama*, are ſcattered in the ſame field, with *maſſee*, which is ſometimes ſcattered, and at others, put into ſeparate ſmall holes. In this field *kuldee* is alſo planted, and ſlips of the *marallee*; *bareally*, or yams, are cultivated, and grow wild likewiſe; *takalloo*, or Indian corn, is the ſame as what is variouſly named in the plains *bootah*, *janeara*, *jewar*, *muckai*; but is larger and better on the hills, and is reaped in *November*. *Koſarane* is like the *callye* grain of the plains in taſte, but is white, and rather larger: it is reaped at the latter end of *November* and beginning of *December*; *lahary* is a large pea, reaped in *December*; *naito* is a round ſeed, reaped in *December*; *kappai* is cotton, and does not flower before the third year, when it is gathered in *March*, *April*, and *May*, and ſells for as much as cotton produced in the plains; *gungarea* is a grain ſmaller than the *cheennee* of the plains, and is reaped in *September* and *October*; *mooto* is ſomewhat like the *gungarea*, and reaped at the ſame time; *koodama* is alſo very ſmall grain, and reaped as the two former; *moſſee* is the ſame as the *bhattmoſs* of the plains, but a ſmaller grain, and is reaped in *September* and *October*; *kuldee* is a large plantain, bears ſome fruit the ſecond year, but more plentifully the third and fourth, after which it declines; *marallee* is the ſame as the *ſakkerkund*, or ſweet potatoe of the plains, but much larger, is taken out of the ground in *November*, *December*, and *January*. The foregoing includes all the cultivated productions of the hills: they are, as may be ſuppoſed, of a hardy nature, and are plentiful or ſcanty in proportion to their having enough or too little rain, for they truſt entirely to the monſoon for water, having neither reſervoirs, nor any method of watering their fields; which in fact might not be poſſible from their ſituation. This laſt ſeaſon their crops in general failed,

from want of rain: on theſe occaſions, the mountaineers cut more wood and bamboos, and make greater quantities of charcoal, for which they find a ready mart in the lowlands, and exchange it for grain.—From this reſource, and the thriftyneſs of ſome among themſelves, who are provident, they averted a famine during the great ſcarcity in 1769 and 1770: many of the inhabitants of the plains retired to the hills, where they got a ſubſiſtence; but having aſſociated and mixed with the highlanders, they of courſe loſt their caſts, and therefore many remained with them. The *takalloo* is the moſt productive of any of their grain, and is their chief ſubſiſtence. There are no eſculent herbs nor garden-ſtuff on the hills. *Pungdoallee*, the ſame as *ſootnee* in the lowlands, grows wild, and is larger than the *ſootnee*. In times of ſcarcity, *ſinglah* (in *Moors*, *Jingoor*) is found in the jungles; but it muſt be boiled in ſeveral waters, or well roaſted, and is a dangerous unwholeſome food: of much the ſame nature is *kindallee*, which is ſliced thin and boiled in four waters, otherwiſe it is poiſonous. The *mango*-tree, *tamarind*, *kuthul*, *bale*, *burrel*, *bayer*, *mowwah*, *jamon*, *phulſah*, *dwarf cudjoor*, that yields a kind of date, and *keand*, with others peculiar to the hills, grow wild. Their domeſtic animals are hogs, goats, and fowls; they have alſo ſome dogs and cats; the wild animals are in general the ſame that are met with in the plains, except a ſpecies of large deer, and another remarkably ſmall; the former are called *mauk*, and the latter *illarroo*.

The internal government of the hills, or the connection between the *Maungy* and his *Dungarear* (adherents) is a ſimple engagement for mutual protection. The *Maungy* ſwears to do them juſtice in diſputes among themſelves, and not to ſuffer them to be oppreſſed by others; and they, on their part, ſwear fidelity to him as long as he ſhall protect them and

do them juſtice : a failure on either part diſſolves the contract : in fine, the *Maungy* is no more than a *primus inter pares*. The *Dungarear* apply to him for land to cultivate, and he allots it : when the crops are ripe, the *Cutwal* and *Phojedar*, on the part of the *Maungy*, prepare with the proprietor of each field to eſtimate what portion he can afford to give his *Maungy:* thus an eaſy and amicable contribution is levied by the conſent of the cultivator, who has no fixed proportion to yield to his chief. If the crops be luxuriant, he willingly gives what he can ſpare; if ſcanty, very little is demanded ; if obſtinately refuſed (a caſe which ſeldom or never happens) the *Maungy* cannot forcibly take any part : but, as a puniſhment, he can prevent this refractory *Dungarear* from cultivating in his territory again. The *Cutwal* and *Phojedar* receive a little grain for their trouble, or perhaps the *Maungy* remits their contribution; for theſe officers, as well as the *Maungy* himſelf, cultivate their fields : they have no ſalary; their ſtations perhaps give them ſome degree of conſequence; and on all trials they either receive ſome compenſation, or are feaſted; the latter however, from their diſputes in general being trivial, is moſt common. The appointment of *Cutwals*, *Phojedars*, and *Jemmadars*, belong to the *Maungies* ; and he can diſmiſs from office when any of them offend ; the *Jemmadar* is merely an honorary officer. I cannot now learn at what period the hill-villages were formed into *Tuppahs*. It ſeems however to have been an aſſociation for mutual protection ; for the *Sirdar Maungy*, or chief of a *Tuppah*, receives no contribution from any village but his own, or one in which he reſides : when appealed to, or applied to for juſtice, he is paid in proportion to the amount or magnitude of the cauſe. He could aſſemble the ſeveral *Maungies* with their adherents on any offenſive or defenſive operations, but could not compel thoſe to act who

disapproved of the motives. In their wars, when highlanders were made prisoners, they were either set at liberty, or were ransomed. In their descents into the plains they were not however so merciful: all who opposed them were put to death; those who made no defence, women and children, were stripped of such valuables as they might have, but neither punished nor made prisoners. On such occasions the chastity of women was held inviolable; for it was believed, if any of the assailants committed violence on the persons of females, that he would infallibly lose his reason and die. The bow and arrow is the only arms peculiar to these mountaineers; some few have swords, and still fewer have match-locks; but these probably were collected in their predatory incursions into the plains, either in war or hunting. In general, they use the bow and arrow in the former, but always in the latter, though I do not think they are expert archers, when it is considered they are all hunters from the time they can carry these arms; and are so fond of that diversion, that they go out at all seasons, and undergo great fatigue for the gratification which it affords them. A poisoned arrow is always used in hunting, but never in war, though they generally had them, as it is said, to be prepared for any game that might start.

There are no slaves on the hills; slavery can neither be said to have been tolerated nor forbidden. Parents never sell their children: and those who hire themselves as servants, stay no longer than they agree with or like their masters.

Enough may have been said of their modes of worship: they are not the first race of people who, we are taught, believed that the chief means of pleasing the Gods, and of pacifying them when they were angry, consisted in certain ceremonies, sacri-

fices, and feaſts, in the due obſervance of which they conceive their welfare depends; for, in praying, the ſuppliant ſays little more than to recommend himſelf and family to the Supreme Being and ſubordinate deities, and to promiſe oblations at the ſhrine of the God he then worſhips, provided he is fortunate, and enabled ſo to do by his proſperity. Their expiatory ſacrifices are however confined to the brute creation; there is no inſtance of their offering up any of the human ſpecies to appeaſe the Gods, who are ſuppoſed to be abundantly pleaſed by the votaries feaſting as large congregations of men as they can afford to maintain; for, in proportion to the expence in meat and ſpirituous drink, the piety of the votary is meaſured. The part which the *Demauno*, their oracle, "dreamer of dreams," bears in their ceremonies and forms of worſhip, has already been deſcribed. Before a man vows to ſacrifice at any ſhrine, he conſults the *Cherreen* and *Satane:* when theſe agree, he repairs to the *Demauno*, without informing him of the reſult of thoſe two proceſſes, but explains to him the cauſe of waiting on him: the *Demauno* is allowed one, two, and even three nights to confer with the Deity in a viſion, to preſcribe what the ſuppliant ought to do; and, as it is believed he has familiar intercourſe with God in his dreams, his decrees are obeyed, though, when they differ from what was diſcoverd by the *Cherreen* and *Satane*, theſe are held over again to reconcile them. The women neither offer ſacrifices, nor approach the ſhrines of their Gods; even huſbands are forbidden to partake of feſtivals during the ſeparation of their wives. Theſe prohibitory laws regarding women are of an old date, and their origin perhaps not well known.

Colonel *Brown*, in his account of theſe hills, forwarded to government in 1779, obſerves that it was

about fifteen years ſince the hill-people had any government among themſelves of a general nature; during which period they had become dangerous and troubleſome to the low country; that their ravages had been the more violent, as they were ſtimulated by hatred againſt the *Zemindars*, for having cut off ſeveral of their chiefs by treachery. The Colonel might have added, that, during that interregnum or diſſolution of government, it was a common practice for the *Zemindars* on the ſkirts of the hills to invite the chiefs in their vicinity, with their adherents, to deſcend and plunder the neighbouring *Zemindaries*; for which, and for the paſſage through their lands, the mountaineers divided the booty with them. Thus, at one time, from repeated acts of treachery in the *Zemindars*, the mountaineers were provoked to take ample vengeance on them, and their unhappy Ryots; and at other times, from their engaging the chiefs to make predatory incurſions, to which they were ſtrongly incited, no leſs from a deſire of plundering their more opulent neighbours, than from the difficulty of obtaining ſalt and tobacco ftom the *hauts*, all friendly intercourſe was at a ſtand; the low country bordering on the hills was almoſt depopulated, and travellers could not paſs with ſafety between *Bhaugulpore* and *Furruckabad*, nor could boats, without danger of being plundered, put to for the night on the ſouth ſide of the *Ganges* between the before-named places. It was at this period of double treachery on the part of the *Zemindars*, and predatory hoſtilities on the part of the mountaineers (from which it may not be a ſtrained inference, that the machinations of the former were in a great meaſure the cauſe of that neceſſity which compelled the latter to ſuch frequent and fatal deſcents, when theſe public and private incendiaries were making large ſtrides in ruining theſe once fertile diſtricts) that Captain *Brooke* was ſtationed with a corps of light infan-

try, to avert their utter destruction. On this duty it is well known that he acquitted himself with great credit, from his uncommon exertions and success in pursuing the unfortunate mountaineers unto their hills, where numbers must have unavoidably fallen; for it became unquestionably necessary to impress them with a dreadful awe of our prowess: and in this harrassing and unpleasant warfare, I have been well informed by officers who were with Captain *Brooke*, that his gallant conduct could not be too much commended. He made them sensible of the inefficacy of opposing him in the field, and invited the chiefs to wait upon him and negociate; when he gave a feast to those who came, and made them presents of turbans; but before any permanent establishment took place, he was succeeded in the command of the light infantry by Captain *Browne*, who made further progress in conciliating the minds of the discomfitted mountaineers. He placed them on the road from *Furruckabad*, near *Colgong*, to protect the *Dwarks*, on which duty they still continue. From this and other measures of his, Captain *Brooke* and he, it will be allowed, laid the foundation for the most permanent and happy settlement concluded with the hill-chiefs by the late Mr. *Augustus Cleveland*, that could possibly be attained. He was sensible, from the rapine and decay of these districts, that the peaceable deportment of the mountaineers ought to be purchased; and, while he was reconciling them to become subjects to the *British* government, he bestowed liberal presents in money and clothes to the chiefs, and to all the men and women who came down to him. Of his generosity they speak with gratitude: and for the blessings and benefit which they derive from the wise and judicious conditions which he granted, and which were confirmed by government, I hope they will ever have reason to be thankful. As long as that govern-

ment lafts, the comforts and happinefs which they derive from them, muft ever infure their obedience. To engage their confidence, Mr. *Cleveland*, in the early part of his intercourfe with the mountaineers, entertained all who offered their fervices as archers, and appointed many of the relations of the chiefs as officers: they were not (nor are they as rangers, though they very feldom now afk their difcharges) bound to ferve for any limited time; the corps, of courfe, conftantly fluctuated, and was frequently, I underftand, above a thoufand ftrong. He clothed them; and in lefs than two years after they were formed, from the confidence he had in their attachment and fidelity, obtained fire-arms for them; in the ufe of which, I may venture to obferve, that they are expert, and have addrefs; and I can alfo without hefitation affert, that they are capable of as high a degree of difcipline as any native corps in the fervice; and I truft I fhall have the happinefs to prove this in due time. Exclufive of having thus employed fo many of the mountaineers, Mr. *Cleveland* fixed the falary of ten rupees per month for each chief of a *Tuppah*, three rupees ditto for each of his *Naibs*, and two for the *Maungy* of each village, from which there fhall be a man enrolled in the hill-rangers; but from fuch as fupply not a man, the inferior *Maungy* receives no monthly allowance. In confideration of thefe eftablifhments, I underftand, the chiefs are not only refponfible for the peaceable deportment of their own adherents, but bound to deliver over all delinquents and difturbers of the public peace within their own limits to the collector, to be tried by an affembly of the chiefs, either at *Bhaugulpore* or *Rájamahall*, as already related. It has ever been cuftomary on thefe occafions to feaft the chiefs fo affembled. When any report is to be made to the collector, it is the duty of a *Naib* to wait on him with it, fhould the chief be indifpofed, or otherwife prevented.

From these happy and admirable arrangements, digested by Mr. *Cleveland*, whose name ought to be dear both to the natives of the hills and lowlands, the ease, comfort, and happiness of the former is ensured (for which they are grateful, and speak of him with reverential sorrow) and peace and safety secured to the latter; and if they have any goodness, they ought not to be less thankful. These solid and essential benefits are attended comparatively with but a trivial expence, and must ultimately be an advantage to government. I have been led to say more on this subject than I intended; yet it may not be thought foreign to it to add, that the *Aumlah* and *Zemindars* erected a monument to the memory of Mr. *Cleveland*, nearly in the form of a pagoda, and that another was also erected at the expence of government, by the order of the Honourable the Governor General and Council; on which is the following inscription:

To the memory of AUGUSTUS CLEVELAND, Esq.
Late collector of the districts of *Bhaugulpore* and *Rajamahall*,
Who, without bloodshed or the terrors of authority,
Employing only the means of conciliation, confidence, and benevolence,
Attempted and accomplished
The entire subjection of the lawless and savage inhabitants of the jungleterry of *Rajamahall*,
Who had long infested the neighbouring lands by their predatory incursions,
Inspired them with a taste for the arts of civilized life,
And attached them to the *British* Government by a conquest over their minds:
The most permanent, as the most rational, mode of dominion.
The Governor General and Council of *Bengal*,
In honour of his character, and for an example to others,
Have ordered this Monument to be erected.
He departed this life on the 13th day of *January*, 1784, aged 29.

Before I conclude, I must do the mountaineers the justice to mention, that they have as great a regard for truth as any people on earth, and will sooner die than deliberately tell a falsehood. In this I must confine myself to those who have not associ-

ated or mixed in converſation with their neighbours, the *Hindu* and *Muſſelman* of the plains; where it is well known, *lie* and *intereſt* are ſynonimous terms: and what change in this reſpect a more familiar intercourſe will occaſion, I ſhall not pretend to premiſe.

They are in general of a cheerful diſpoſition, and humane: both men and women are remarkably baſhful. When aſked to ſing (their notes are wild and drawling, having a ſlow cadence, from forte to piano) or dance, they ever anſwer, that they can do neither without drinking freely, for they are aſhamed until they are intoxicated. Like all people in ſo rude and uncultivated a ſtate, they are paſſionately fond of ſpirituous liquors, and, I am inclined to believe, prefer that which from its ſtrength will inebriate them the ſooneſt. Hence it appears that they are not aſhamed of being drunk, and in fact their religion promotes it, for a feſtival would not be much eſteemed that was unattended with a hearty carouſe.

I conceive, inſtances of remarkable longevity are very rare: I have heard of one man who was ſaid to be more than five ſcore; but, as I have never met with any of them that appeared ſo old, or that could tell his age, for they keep no account of it, I am inclined to doubt the fact. In a late excurſion with Mr. *Grant* into the hills, we ſaw an old woman, who was ſaid to be of a great age: ſhe was a relation to a chief, whoſe houſe we were at; and having taken a cheerful glaſs, with his wives and daughter, of liquors which Mr. *Grant* had carried up to give them, ſhe ſet him the example of ſinging and dancing to us; in which ſhe was followed by the chief and two of his youngeſt wives, who were at the time far from ſober. When we had dined, the meat that remained was given to them; of which, the family being aſſembled, they thankfully partook, and

made indubitably a more luxurious meal than they ever had before. We took a route in which no *European* had been; and Mr. *Grant*, to reconcile them to ſo novel a ſight, as well as to conciliate their attachment, carried up a variety of preſents of clothes, beads, and looking-glaſſes, which he diſtributed with money to every family in all the villages we paſſed, and thus left them the moſt acceptable memorials of their viſitors.

Bhaugulpore, June 27, 1792.

ADDITIONAL REMARKS

ON THE

SPIKENARD OF THE ANTIENTS.

BY THE PRESIDENT.

NEARLY at the time when the reſult of my firſt inquiries concerning ſpikenard was publiſhed in the ſecond volume of our *Aſiatic Reſearches*, there appeared in the *Philoſophical Tranſactions* an account of the *Andropogon Jwaráncuſa*, the ſpecimen of which Dr. *Blane* had received from *Lucnow*, and which he ſuppoſes to be the true *Indick* nard of *Dioſcorides* and *Galen*. Having more than once read his arguments with pleaſure, but not with conviction, I feel it incumbent on me to ſtate my reaſons for diſſenting from the learned phyſician with all the freedom of a ſearcher for truth, but without any diminution of that reſpect to which his knowledge and candor juſtly entitle him.

In the firſt place, there is a paſſage in Dr. *Blane*'s paper, which I could not but read with ſurpriſe; not becauſe it is erroneous or diſputable (for nothing can be more certain) but becauſe it is deciſive againſt the very propoſition which the writer

endeavours to ſupport. " *Dioſcorides* mentions the " *Syriack* nard," ſays the Doctor, " as a ſpecies dif- " ferent from the *Indian*, which *was certainly brought* " *from ſome of the remote parts of India*; for both he " and *Galen*, by way of fixing more preciſely the " country whence it came, call it alſo *Gangites*." We may add, that *Ptolemy*, who, though not a profeſſed naturaliſt, had opportunities in *Egypt* of converſing with *Indian* merchants on every thing remarkable in this country, diſtinguiſhes *Rangantati* as producing the true ſpikenard; and it is from the borders of that very diſtrict, if we believe modern *Indians*, that the people of *Butan* bring it yearly into Bengal *. Now, it is not contended that the new ſpecies of *Andropogon* (if it be a new ſpecies) *may be* the *Indick* nard of *Dioſcorides* †, becauſe it was found by Mr. *Blane* in a remote part of *India* (for that ſolitary fact would have proved nothing); but it is learnedly and elaborately urged, that it *muſt be* the true *Indian* ſpikenard, becauſe it differs only in the length of the ſtalks from the nard of *Gracias*; which, according to him, is the only ſpecies of *nardus* exported from *India*, and which reſembles a dried ſpecimen ſeen by *Rumphius*, and brought, he ſays, among other countries, from *Macrán*, or the ancient *Gadroſia*; the very country where, according to *Arrian*, the true nard grew in abundance: for " the *Phenicians*," he ſays, " collected " a plentiful ſtore of it; and ſo much of it was tram- " pled under foot by the army, that a ſtrong per- " fume was diffuſed on all ſides of them." Now

* *Ptolémée* diſtingue le canton de *Rhandamarcotta*, en ce qu'il fournit la plante, que nous appellons *Spicnard* ce qui peut convenir à *Rangamati*; et des differentes eſpéces, l'*Indique* eſt bien la plus eſtimée. *D'Anv. Antiq. Geogr. Ind* 81.

† Dr. *Roxburgh*, with great reaſon, ſuppoſes it to be the *Múricated Andropogon* of *Koenig*, who mentions the roots as odoriferous when ſprinkled with water. See *Retz*. iii. *Faſcic* 43 and v. 21.

there is a ſingular coincidence of circumſtances; for our *Andropogon* was diſcovered by the ſcent of its roots, when they were cruſhed by the horſes and elephants in a hunting party of the *Vazir Aſufuddaulah*; ſo that, on the whole, *it muſt be the ſame with the plant mentioned by Arrian*: but it may be argued, I think, more concluſively, that a plant, growing with great luxuriance in *Gadroſia*, or *Macran*, which the Doctor admits to be *a maritime province* of *Perſia*, could not poſſibly be the ſame with a plant *confined to remote parts of India*; ſo that, if *Garcias*, *Rumphius*, and *Arrian* be ſuppoſed to have meant the ſame ſpecies of nard, it was evidently different from that of *Dioſcorides* and *Galen*. The reſpectable writer, with whoſe opinions I make ſo free, but from no other motive than a love of truth, ſeems aware of a little geographical difficulty from the weſtern poſition of *Macrán*; for he firſt makes it extend to the river *Indus*, and then infers, from the long march weſtward and the diſtreſs of *Alexander*'s army, ſubſequent to the diſcovery of the ſpikenard, that it muſt have grown in the more eaſtern part of the deſert, and conſequently on the very borders of *India*; but, even if we allow *Gadroſia*, or *Gadroſis*, to have been the ſame track of land with *Macrán* (though the limits of all the provinces in *Perſia* have been conſiderably changed) yet the frontier of *India* could never with any propriety be carried ſo far to the weſt; for not only the *Oritæ* and *Arabitæ*, but, according to *Mela*, the whole province of *Ariana* were between *Gadroſis* and the *Indus*; and, though *Macrán* (for ſo the word ſhould be written) may have been annexed to *India* by ſuch whimſical geographers as the *Turks*, who give the name of *White Indians* to the *Perſians* of *Arachoſia*, and of *Yellow Indians* to the *Arabs* of *Yemen*, yet the river *Indus*, with the countries of *Sind* and *Múltan* on both ſides of it, has ever been conſidered by the *Perſians* and *Arabs* as the weſtern limits of *Hind* or *India*;

and *Arrian* himſelf expreſsly names the *Indus* as its known boundary. Let *Gadroſis*, however, be *Macrán*, and let *Macrán* be an Indian province, yet it never could have been *a remote part* of *India* in reſpect of *Europe* or *Egypt*, and, conſequently, was not meant by *Galen* or *Dioſcorides*, when they deſcribed the true ſpikenard. It muſt be admitted, that, if the *Siree* of *Rumphius*, which differs little from the *nardus* of *Garcius*, which correſponds for the moſt part with the new *Andropogon*, was ever brought from the province of *Macrán*, they were all three probably the ſame plant with the nard of *Arrian*; but, unfortunately, *Rumphius* thought of no country leſs than of *Perſia*, and of no province leſs than of *Macrán*; for he writes very diſtinctly, both in his *Latin* and his *Dutch* columns, that the plant in queſtion grows in *Mackián*, which he well knew to be one of the *Moluccas* *. I am far from intending to give pain, by detecting this trifling miſtake; and, as I may have made many of greater conſequence, I ſhall be truly obliged to any man who will ſet me right with good manners, the ſacred laws of which ought never to be violated in a literary debate, except when ſome petulant aggreſſor has forfeited all claim to reſpect.

Arrian himſelf can by no means be underſtood to aſſert that the *Indian* ſpikenard grew in *Perſia*; for his words are *a fragrant root of nard* †, where the omiſſion of the definite articles implies rather *a nard*, than *the nard*, or the moſt celebrated ſpecies of it; and it ſeems very clear, that the *Greeks* uſed that foreign word generically for odoriferous plants of dif-

* Hi flores ſæpe, immo vulgo fere, obſervantur in vetuſtis *Siree* ſtipitibus, qui in *Ternata*, *Motira*, et *Mackian* creſcunt. Vol. 5. Lib. 8. Cap. 24. p. 1821

† Νάρδε ῥίζαν εὔοσμον.

ferent natural orders: but *Arrian* in truth was a mere compiler; and his credit, even as a civil hiſtorian, ſeems liable to ſo much doubt, that it cannot be ſafe to rely on him for any fact in the hiſtory of nature. "We cannot," ſays the judicious and accurate *Strabo*, "give eaſy credence to the generality even of "cotemporary writers concerning *Alexander*, whoſe "fame was aſtoniſhingly high, and whoſe hiſtorians, "preferring wonders to truth, wrote with ſecure negli-"gence; well knowing, that, as the fartheſt limits of "*Aſia* were the ſcene of his actions, their aſſertions "could hardly be diſproved." Now *Arrian*'s principal authority was *Ariſtobulus* of *Caſſandra*, whoſe writings were little prized by the antients, and who not only aſſerted, "that *Gadroſis* produced very tall "*myrrh*-trees, with the gum of which the *Phenicians* "loaded many beaſts" (notwithſtanding the ſlaughter of them, from the diſtreſs of the whole army) but, with the fancy of a poet deſcribing the neſt of a phœnix, placed *myrrh*, *incenſe*, and *caſſia*, with *cinnamon*, and *ſpikenard* itſelf, even in the wilds of *Arabia*.—"The fruitfulneſs of *Arabia*," ſays *Arrian*, "tempted "the king of *Macedon* to form a deſign of invading "it; for he had been aſſured that myrrh and frank-"incenſe were collected from the trees of that coun-"try; that *cinnamon* was procured from one of its "ſhrubs; and that its meadows produced ſpontane-"ouſly *abundance of ſpikenard*." *Herodotus*, indeed, had heard of cinnamon in *Arabia*, where the *laurus*, to the bark of which we now give that name, was, I verily believe, never ſeen: even the myrrh-tree does not ſeem to have been a native of *Arabia*; and the public are now informed that it was tranſplanted from *Abyſſinian* foreſts, and has not flouriſhed on the oppoſite ſhore; but, whatever be the countries of myrrh and cinnamon, we may be certain that any learned *Arab* would laugh at us, if we were to tell him that the *Sumbulu'l Hind* grew wild

in abundance on the plains of *Tahâmah*. It ſeems a bold allegation of *Garcias*, that he has exhibited "the only ſpecies of *nardus* known in *India*, either "for conſumption by the natives, or for exportation "to *Perſia* and *Arabia*." If he meant that any plant was either uſed in this country or exported from it by *the name of nard*, he had been ſtrangely deceived; and if he meant, that it was the only fragrant graſs uſed here as a medicine, or as a perfume, his error was yet more groſs. But, whatever his meaning might have been, if the nard of *Garcias* and of *Arrian* was one and the ſame plant, it is wonderful that it ever ſhould have been exported to *Perſia* and *Arabia*, where it grew, we are told, in ſo great abundance. The nard of *Arabia* was, probably, the *Andropogon Schænanthus*, which is a native of that country: but, even if we ſuppoſe that the ſpikenard of *India* was a *reed* or a *graſs*, we ſhall never be able to diſtinguiſh it among the many *Indian* ſpecies of *Cypirus*, *Andropogon*, *Schænus*, *Carex*, and other genera of thoſe natural orders, which here form a *wilderneſs of ſweets*; and ſome of which have not only *fragrant roots*, but even *ſpikes* to the ancient and modern ſenſes of that emphatical word; one of them, which I never have ſeen in bloſſom, but ſuppoſe from its appearance to be a *Schænus*, is even called *Gónarda*, and its dry root has a moſt agreeable odour; another, which *Rheede* names *Bálaca*, or *Ramacciam*, or *White Irivéli*, and which *Burman* thought a variety of the *Schænanthus*, is a conſiderable article, it ſeems, of *Indian* commerce, and therefore, cultivated with diligence, but leſs eſteemed than the *black* ſort, or *Carabála*, which *has a more fragrant root, and affords an extremely odoriferous oil**. All thoſe plants would,

* 12 Hort. Malab. tab. 12 and 9 H. M. p. 145. See alſo the *Flora Indica*, and a note from *Herman* on the valuable oil of *Seree*.

perhaps, have been called *nards* by the antients; and all of them have ſtronger pretenſions to the appellation of *the true ſpikenard*, than the *Febrifuge Andropogon*, which the *Hindus* of *Behár* do not uſe as a perfume. After all, it is aſſuming a fact without proof, to aſſert that *Indian* ſpikenard was evidently gramineous; and, ſurely, that fact is not proved by the word *ariſta*, which is conceived to be of a *Grecian* origin, though never applied in the ſame ſenſe by the *Greeks* themſelves, who perfectly well knew what was *beſt* for mankind in the vegetable ſyſtem, and for what gift they adored the goddeſs of *Eleuſis*. The *Roman* poets (and poets only cited by Dr. *Blane*, though naturaliſts alſo are mentioned) were fond of the word *ariſta*, becauſe it was very convenient at the cloſe of an hexameter, where we generally, if not conſtantly, find it; as *Homer* declares in *Lucian*, that he began his *Iliad* with Μῆνιν, becauſe it was the firſt commodious word that preſented itſelf, and is introduced laughing at a profound critic, who diſcovered in that ſingle word an epitome of the whole poem on the *wrath* of *Achilles*. Such poets as *Ovid* and *Lactantius*, deſcribed plants which they never had ſeen, as they deſcribed the neſt of the phœnix, which never exiſted, from their fancy alone; and their deſcriptions ought not ſeriouſly to be adduced as authorities on a queſtion merely botanical; but, if all the naturaliſts of *Greece* and *Italy* had concurred in aſſuring us that the nard of *India* bore an ear or ſpike, without naming the ſource of their own information, they would have deſerved no credit whatever; becauſe not one of them pretends to have ſeen the freſh plant; and they have not even agreed among themſelves, whether its virtues reſided in the *root*, or in the *huſky leaves* and ſtalks that were united with it. *Pietro della Valle*, the moſt learned and accompliſhed of eaſtern travellers, does not ſeem to have known the *Indian* ſpikenard, though

he mentions it more than once by the obſolete name of *Spigonardo*; but he introduces a *Sumbul* from *Khatá*, or a part of *China*, which he had ſeen dry, and endeavours to account for the *Arabic* name in the following manner:—"Since the *Khatâian Sumbul*," ſays he, "is not a *ſpike*, but a *root*, it was "probably ſo named, becauſe the word *Sumbul* may "ſignify, in a large acceptation, not only the ſpike, "but *the whole plant*, whatever *herb or graſs* may be "ſown; as the *Arabic* dictionary*, entitled *Kámús*, "appears to indicate." The paſſage to which he alludes is thus:—"*Sumbul*," ſays the author of the *Kámús*, "is an *odoriferous plant*, the ſtrongeſt of "which is the *Súrì*, and the weakeſt the *Hindi*; "but the *Sumbul* of *Rúm* has the name of *nardin*." I ſuggeſted in my former paper, and ſhall repeat in this, that the *Indian* ſpikenard, as it is gathered for uſe, is in fact *the whole plant*; but there is a better reaſon why the name *Sumbul* has been applied to it. By the way, *Della Valle* ſailed, as he tells, along the coaſt of *Macrán*, which he too ſuppoſes to have been a part of *Gedroſia*; but he never had heard that it produced *Indian* ſpikenard, though the *Perſians* were fully acquainted with that province; for he would not have omitted ſo curious a fact in his correſpondence with a learned phyſician of *Naples*, for whoſe ſake he was particularly inquiſitive concerning the drugs of *Aſia*. It is much to be wiſhed, that he had been induced to make a ſhort excurſion into the plains of *Macrán*, where he might have found, that the wonderful tree which *Arrian* places in them, *with flowers like violets, and with thorns of ſuch force and*

* Giacchè il *Sombol* del *Cataio* é radice e non è *Spiga*, potremmo dire, che coſi s'i chiami, perchè forſe la parola *Sombol* poſſa piu largamente ſignificare non ſolo la ſpiga, ma *tuttu la pianta* di ogni erba ò biada, che ſi ſemini; come par, che il *Camus*, vocabolario *Arabico*, ne dia Indizio. *Lett.* 18 di *Baghdad*.

magnitude, as to keep wild beasts in captivity, and to transfix men on horseback who rode by them incautiously, was no more, probably, than a *Mimosa*, the blossoms of which resembled violets in nothing but in having an agreeable scent.

Let us return to the *Arabs*, by whom *Dioscorides* was translated with assistance (which the wealth of a great prince will always purchase) from learned *Greeks*, and who know the *Indian* spikenard better than any *European*, by the name of *Sumbulu'l Hind*. It is no wonder that they represent it as weaker in scent and in power than the *Sumbul* of the *Lower Asia*, which, unless my smell be uncommonly defective, is a strong *Valerian*; especially as they could only have used the dry nard of *India*, which loses much of its odour between *Ranpúr* and *Calcutta*. One question only remains (if it be a question) whether the *Sumbulu'l Hind* be the true *Indian* spikenard? for in that case, we know the plant to be of the natural order, which *Linnæus* calls *aggregate*. Since the publication of my paper on this subject, I put a fair and plain question severally to three or four *Musselman* physicians: "What is the *Indian* name of the plant which the "*Arabs* call *Sumbulu'l Hind?*" They all answered, but some with more readiness than others, *Játámansí*. After a pretty long interval, I shewed them the *spikes* (as they are called) of *Játámansí*, and asked, what was the *Arabic* name of *that* Indian *drug?* They all answered readily, *Sumbulu'l Hind*. The same evidence may be obtained in this country by any other *European* who seeks it; and if among twelve native physicians, versed in *Arabian* and *Indian* philology, a single man should, after due consideration, give different answers, I will cheerfully submit to the *Roman* judgment of *non liquet*; my own inquiries having convinced me, that the *Indian* spikenard of *Dioscorides* is the *Sumbulu'l Hind*; and that the *Sumbulu'l Hind*

is the *Jatámánsí* of *Amarsinh*. I am persuaded, that the true nard is a species of *Valerian*, produced in the *most remote* and hilly parts of *India*; such as *Népál*, *Morang*, and *Butan*, near which *Ptolemy* fixes its native soil. The commercial agents of the *Dévarája* call it also *Pampi*; and, by their account, the dried specimens which look like the tails of ermines, *rise from the ground, resembling ears of green wheat, both in form and colour*: a fact which perfectly accounts for the names *Stachys*, *Spica*, *Sumbul*, and *Khúshah*, which *Greeks*, *Romans*, *Arabs*, and *Persians* have given to the drug, though it is not properly a *spike*, and not merely a *root*, but *the whole plant*, which the natives gather for sale, before the radical leaves, of which the fibres only remain after a few months, have unfolded themselves from the base of the stem. It is used, say the *Butan* agents, as a perfume, and in medicinal unguents, but with other fragrant substances, the scent and power of which it is thought to increase: as a medicine, they add, it is principally esteemed for complaints in the bowels. Though considerable quantities of *Jatámánsí* are brought in the caravans from *Butan*, yet the living plants, by a law of the country, cannot be exported without a license from the sovereign; and the late Mr. *Purling*, on receiving this intelligence, obligingly wrote, for my satisfaction, to the *Dévarája*, requesting him to send eight or ten of the plants to *Rangpúr*: ten were accordingly sent in pots from *Tasisúdan*, with as many of the natives to take care of them, under a chief, who brought a written answer from the *Rájá* of *Butan*; but that prince made a great merit of having complied with such a request; and my friend had the trouble of entertaining the messenger and his train for several weeks in his own house, which they seem to have left with reluctance. An account of this transaction was contained in one of the last letters

that Mr. *Purling* lived to write; but, as all the plants withered before they could reach *Calcutta*, and as inquiries of greater importance engaged all my time, there was an end of my endeavours to procure the fresh *Jatámánsí*, though not of my conviction, that it is *the true nard of the antients*.

TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL.

ON THE

DHANE'SA, OR INDIAN BUCEROS.

BY LIEUT. CHARLES WHITE.

COMMUNICATED BY LIEUT. FRASER.

THERE are two diſtinct ſpecies of this bird; one called *Bægma Dunnaſe*, and the other *Putteal Dunnaſe*.

I ſhall firſt treat of the *Bægma*, which is divided into two kinds; the ſpecific marks of which I ſhall hereafter mention.

The *Bægma Dunnaſe* is a very remarkable bird, and, I believe, has not hitherto been deſcribed. As far as lies in my power, I ſhall endeavour to reſcue it from a ſituation ſo unworthy the diſtinction it has a ſtrong claim to among the curious productions of nature.

It may be neceſſary to premiſe, that the names of *black-horned* and *white-horned* are given by myſelf, the natives not making any diſtinction between them. I have beſtowed upon them theſe names from the difference of the baſes of their horns.

Black-horned, *Bægma Dunnaſe*, with a large double beak, or a large beak ſurmounted by a horn ſhaped

like the upper mandible, which gives it the appearance of a double beak. The horn is hollow; at the base brown, with a broad edging of *black*, quite hard; a black mark runs from about one inch from the base to the point of the horn, very irregular in its breadth, in the centre reaches to the junction of the horn with the upper mandible; upper and lower mandible serrated, and separate from each other about three inches in the middle of the beak longitudinally; upper mandible marked with black at its junction with the head, which part is quite hard; immediately below this the lower mandible has a large black mark, which appears on both sides, and joins at the bottom; joining to this, and covering the base of the lower mandible, is about an inch of white shrivelled skin; between these, at the edge of the mandible, is a small brown spot covered slightly with feathers; the rest of the beak and horn cream-colour, patched with yellow, except the point, which is much whiter; the nostril placed at a small distance from the head, in the junction of the horn with the beak: head, neck, back, and coverts of the tail, black; breast, belly, thighs, and coverts of the vent, white; scapulars, greater and lesser coverts of the wings, black, varying to a greenish tinge; under coverts of the wings, white; primaries, white at their base, then black, with three inches of white at their ends; secondaries, nearly the same; tertials black; a few white feathers on the outward edge of the wing, just below the shoulder; tail cuneiform, two middle feathers black, longer than the rest, which are white, four on each side crested, close; the feathers extending a little way down the neck; eye, speculum black, irides reddish brown; the cheek immediately round the eye, and extending from the beak to the ear, devoid of feathers, consisting of a shrivelled skin, which is nearly black; ear-feathers about an inch long, extending partly

acroſs the head; tongue ſhort, formed like a dart, with the ears of the barb raiſed above the ſhaft; near the epiglottis it ſwells to the ſize of a ſmall nutmeg, which part is perforated; when the mouth is open, a black and brown knob appears below the upper mandible, riſing from its baſe to an inch beyond its apparent junction with the head; legs and feet black, tinged with brown and dirty white; claws large and ſtrong, three in front, and one behind; length, upon an average, from the forehead to the tip of the tail, two feet eight inches; extent, three feet two inches.

White-horned Bægma Dunnaſe, agreeing with the former in deſcription, except in the following particulars: the horn in theſe is generally ſmaller, and blunter at the point, and at the baſe it is ſoft, conſiſting of a membraneous ſubſtance; the ground white, marked with crimſon; the ſkin, which covers the baſe of the lower mandible, is very differently ſhaped, and is much ſtained with crimſon; only a ſmall ſpot of black upon the upper mandible, where it joins the head, which junction is ſoft; eye black, the ſkin round the eye, extending to the ear, white, marked with crimſon: the ear-feathers form a curve, beginning in the centre of the black mark of the lower mandible, running along it, and riſing above the ear, where it joins the creſt. In ſome I have obſerved the white tail-feathers marked in the web with black at their baſe. Theſe birds in ſize are rather ſmaller than the firſt.

Putteal Dunnaſe, with a double beak, or horn, upon the upper mandile, over which it curves about half way, baſe hid in feathers; horn black, except at the lower edge, near the point, which is brown; the upper mandible black in the middle, ſhaded off to white at the point; lower mandible the ſame, white

at the bottom, both ſerrated; a ſmall black projection from the bottom of the lower mandible creſted, cinereous, tinged with brown; the feathers, from the eye to an inch over the beak, iron-grey, daſhed with brown; ear-feathers dark iron-grey, forming a curve from the lower part of the eye, extending nearly acroſs the head, under the creſt; back grey; neck the ſame, much lighter; breaſt, belly, thighs, and coverts of the vent, white; coverts of the tail, greyiſh brown; ſcapulars, greater and leſſer coverts of the wings, lead-colour; primaries at the baſe of the web, black, then dark grey, edged with white; each primary white at the end, near an inch; ſecondaries nearly the ſame; tertial greyiſh brown; under coverts of the wings white; tail cuneiform, very long, two middle feathers reddiſh brown, longer that the reſt, which are ferruginous, tipt with near an inch of white, above which is a mark much larger, black; eye, ſpeculum black, irides reddiſh brown; from the beak to the ear-feathers, and round the eye, bare; this part is black; legs and feet black, marked with dirty white at the joints; claws large and ſtrong; length two feet five inches, from the tip of the beak to the tip of the tail; extent two feet four inches.

The laſt of theſe birds is to be met with in almoſt every part of the country, more particularly where there are jungles. I have ſeen a variety of them at *Burragong* in *Sircar Sarun*, where, inſtead of the horn, they had a large knob at the baſe of the beak, very much reſembling that of a wild gooſe. The one I have attempted to give a deſcription of, was brought to me at *Midnapore*, in which province, and the extending hilly country, they abound. I have ſeen them in the vicinity of *Sheergotty*.

The *Bægma Dunnaſe* chiefly inhabits the weſtern range of hills, extending from *Neelgur* through *Ma-*

hurbunge, *Midnapore*, *Ramgur*, *Rotas*, towards *Bidzigur*. In *Ramgur*, I have been informed by an intelligent perſon, they are to be ſeen in abundance. He told me that he had ſeen crowds of them on the *peepul*-trees, the berry of which they feed upon at times.—Their note, or voice, in concert, has a ſtrong reſemblance to the mournful cries of monkies, for which this perſon, deceived by the ſound, at firſt took them.—The place where I met with them was at *Midnapore*, in the *jungles* adjacent to which they are to be found from the month of *November* to the month of *March* only; at which time they retire to the hills to breed. I ſhould have been highly pleaſed could my curioſity have been gratified in the enquiries I made reſpecting the œconomy of this extraordinary bird; but the people I had to deal with were poor ignorant folk, from whom I could gain but little information: I therefore can do little more than aſcertain one curious fact, and diſplay ſome qualities of the bird, which may hereafter be of benefit, if thoroughly inveſtigated by ſome perſon of medical ſkill.

Theſe birds have a moſt remarkable appearance when in the act of flying, from the great ſize of their beaks and length of tail. I have ſeen ſeveral of them in this ſtate; and a more uncouth object I never beheld. The beak, which forms the moſt prominent feature in this ſtrange bird, may be conſidered as one of the moſt uncommonly curious among the feathered tribe. The *Toucan*, the *Spoonbill*, the *Pelican*, the *Dodo*, and others, certainly claim the attention of the naturaliſt; but in my humble opinion the *Bægma* has merits far ſuperior, on the ground of rarity. The largeſt beak I ever ſaw was produced from a bird ſhot at a place called *Kullar*, about nine miles from *Midnapore*. The following is the meaſurement:

	Inches.
Length of the beak in a ſtraight line from its junction with the head - - -	8½
Length of the horn from the baſe to the point -	8½
Depth of the whole beak, including the horn, near	4½
The horn to its junction with the upper mandible	2¼
Each mandible in the centre of the beak .	1
Diſtance from the point of the horn to the point of the beak	3

It may be proper to obſerve here, that the beak forms a much greater curve than the horn, the point of which is parallel to its junction with the beak; whereas the point of the beak comes down an inch and a quarter below the lower mandible. The following is the meaſurement of the bird to which this beak belonged.

	Feet.	Inch.
Length from the forehead to the tip of the tail	2	9
Circumference in the thickeſt part - -	0	15
Neck, from the chin to the ſhoulder - -	0	6
Body, from the ſhoulder to the rump -	1	0
Tail, from the rump to the point - -	1	1
Height and breadth of the head . -	0	3½
Circumference of the neck in the middle -	0	6
Length of the wing when cloſed - -	1	1½
Ditto when open - - - -	1	5½
Extent when expanded from tip to tip -	3	3
Length of the legs - - - -	0	1½
Ditto of the toes - - - -	0	2¼
Ditto of the claws (largeſt) - - -	0	0¾
Circumference of the legs - - -	0	1½

I have to regret that I did not weigh this bird: indeed at the time I had no idea that I ſhould attempt the deſcription of it; I can only therefore venture to gueſs that it might weigh about ſix or ſeven pounds. I took a drawing of the bird, which has enabled me to give the above account.

I endeavoured to acquire ſome information from the bird-catchers reſpecting the uſe of the horn, upon

the idea that *Nature forms nothing in vain*; but all that I could learn was unſatisfactory, and amounted to little more than this: one of the beaks was brought to me with the horn very much worn at the point, which they told me proceeded from the bird's ſtriking it againſt the trees; but for what particular purpoſe they ſo applied it, they could give no clear account.

But what may be probably deemed the moſt extraordinary circumſtance relating to this curious bird, is its feeding upon the *nux vomica*. This is a point which I have been able clearly to aſcertain. One of theſe birds, purchaſed by Capt. *John Campbell*, was opened, by his orders, before ſeveral reſpectable gentlemen at *Midnapore*; and in its craw were found ſeveral ſeeds of the *nux vomica*. With reſpect to my own obſervation, I have had only one opportunity of ſeeing the contents of the craw, which was that of the bird ſhot at *Kullar*. Nothing was found in it but the remains of an egg, and ſome weeds: but to carry on the enquiry, that I might be able ſafely to aſſert what appeared to me a circumſtance of great curioſity, I aſked the bird-catchers what theſe birds fed upon.—They very particularly mentioned a fruit called *coochla*. Agreeably to my directions, they brought it to me.—It was about the ſize of a lime, of an orange colour, with a very hard ſkin, ſhining and almoſt ſmooth: it contained a pulpous ſubſtance, diſtinct and ſeparate from the ſhell. Converſing ſince with a man who had been in Major *Crawford*'s corps at *Jelda*, who had ſeen great numbers of theſe birds in the ſurrounding hilly country, I enquired of him what they fed upon. He ſaid, ſometimes upon the berry of the *peepul*-tree; but that the food they affected moſt, and with which they were moſt delighted, was the *coochla*; which he ſaid was to be had in every *bazar*. He brought me ſome of it. It proved to be the true *nux vomica*;

which, from an account given to me by a native, is produced from the fruit above mentioned. The *pulpous* ſubſtance drying, leaves one, two, and ſometimes three of the flat ſeeds, which are known as the *nux vomica*: and this agrees with the account given of it by *Caſper Newman*, in his *Chemical Works*; who ſays, "*Nux vomica*, ſo called, is not a nut, but the ſeed of "a fruit, like an orange, growing in the *Eaſt Indies*." The tree which produces the *coochla*, abounds in the range of weſtern hills before mentioned: it varies in its ſize: ſometimes attains to a conſiderable height; has a leaf nearly ſhaped like a heart. It appears from what I have ſaid, that theſe birds feed not only upon the ſeed, when it has arrived at a ſtate of maturity, but that they alſo eat it in the ſtate it was brought to me by the bird-catchers; and, that when the *coochla* is not to be had, they reſort to other food. Theſe birds, at particular ſeaſons, grow very fat; and this ſeaſon appears to be when the fruit of the *nux vomica* prevails,—about the month of *December*. The one before mentioned, ſhot at *Kullar*, was killed in that month, and was very fat. The natives make uſe of the fat, and alſo of the fleſh and bones, as a medicine. They apply both ſpecies to this purpoſe. The caſes they uſe it in are, in the contractions, which ſometimes proceed from catching cold after the profuſe uſe of mercury: it is applied to alleviate and remove violent pains, that often ſucceed venereal complaints, called by the natives *Guttea ke Azar*: it is alſo uſed by the natives in very cold weather, when the pores of the ſkin are affected; for, being in its nature extremely hot, in this caſe it cauſes a free perſpiration. The *Bægma* is preferred to the *Putteal*, as being deemed more efficacious. The mode they apply it in is this: they reduce the fat to an ointment, at the ſame time mixing with it every kind of ſpice, pepper, cloves, cardamums, &c. the fleſh is alſo mixed in the ſame manner. The ointment is rubbed into the part af-

fected every night when they go to ſleep, and a certain portion of the meat is eaten in the morning riſing: the gall is alſo uſed by the native women in caſes of ſterility:—they take it either infuſed in water, or mix it with their *Pawns*; and of the efficacy of this they have the firmeſt reliance, under Providence. I enquired of the perſon who gave me this account, whether he had ever known any one who had been benefitted by this medicine: he told me that he was acquainted with a man who had uſed it in contractions of his limbs, and that this perſon declared he had derived great advantage from the application.—At any rate, it is certainly an opinion generally adopted by the natives, that it is of great uſe in the caſes I have mentioned. With every one with whom I have converſed, the medicinal properties of this extraordinary bird are held in the higheſt eſtimation; they ſpeak of it with a degree of admiration bordering on enthuſiaſm. Thus I have endeavoured, from the ſlight ability I poſſeſſed, to bring forward to public notice one of the moſt curious birds I have ever ſeen or heard of. Some allowance, I truſt, will be made, from the conſideration that this is my firſt eſſay: perhaps I ſhould never have made the attempt but from having taken a drawing of the bird, and having heard of its feeding upon the *nux vomica:* theſe circumſtances induced me to give the above account.—*Wolf*, in his deſcription of *Ceylon*, has the following words: "a very rare ſpecies too of cock is found here, "called Double-billed: this has a white double bill, "which is almoſt as large as the bird itſelf." It is by no means improbable that this may be the ſame bird which I have given an account of: the beak of the *Bægma Dunnaſe*, particularly when in the act of flying, appears to be as large as the bird itſelf; the depth in meaſurement is nearly the ſame. It is impoſſible to form any reaſonable conjecture reſpecting the uſe of the horn: that ſome it muſt have, may

naturally be ſuppoſed; but what, muſt be left to the future inveſtigation of ſome one whoſe ſituation will afford him full opportunity of making the inquiry: it is certainly an object worthy of attention; more particularly ſo, as tending to elucidate the wiſdom of the Supreme Being, who *undoubtedly* creates nothing in vain.

REMARK BY THE PRESIDENT.

Though the genus of the *Dhanéſa* be already known to our naturaliſts by the appellations of *Buceros*, *Calao*, and *Hornbill*; and though even the ſeveral ſpecies be diſtinguiſhed, I believe, with exactneſs, yet we are obliged to Lieut. *White* for a *complete deſcription* of ſo extraordinary a bird, and for our knowledge of the *ſingular facts* which he firſt made public. The *hollow protuberance* at the baſe of the upper mandible, has been ſuppoſed, with reaſon, by *Count Gika*, to *ſerve as a receptacle for nouriſhment*; and the natives, I find, conſider it as a natural ciſtern to ſupply the bird with water in the dry ſeaſon, and on its long excurſions; whence the name of *Dhanéſa*, or *Lord of Wealth*, may poſſibly have been given to it. The Count had been informed that it was no other than the *Garuda* of *Indian* Mythologiſts; but the *Pandits* unanimouſly aſſure me, that, by the word *Garuda*, they mean in common diſcourſe the *Gridhra*, or King of *Vultures*; and they have a curious legend of a young *Garuda*, or Eagle, who burned his wings by ſoaring too near the ſun, on which he had fixed his eyes. The bird of *Viſhnu* is in fact wholly mythological; and I have ſeen it painted in the form of *a boy with an Eagle's plumage*. As to the *Cuchilá* (for ſo is the word written and correctly pronounced) it is, no doubt, the *Strychnos nux vomica*, or *Colubrina*, for they are now thought *ſpecifically* the ſame.

The leaves and fruit of both the *varieties* were brought to me by a *Bráhmen* as thoſe of the *Cuchilál*; and he repeated a *Sanſcrit* verſe, in which it was called *Vana-rája*, or *King of the Foreſt*: but, according to an approved comment on the *Amaracóſh*, it has four other names, amongſt which *Culaca* is the ſmootheſt; ſo that the firſt true ſpecies of this genus may be named *Strychnos Culaca*, and the ſecond *Strychnos Cataca*; by which denomination it is mentioned in the Laws of *Menu*, where alluſion is made to the *Indian* practice of clearing water, by bruiſing one of the ſeeds, and caſting it into the jar, *where*, ſays *Koenig*, *all impurities are in a few moments precipitated, and the water becomes perfectly limpid.*

A Villiage at Nancowry.

MAHARAJA SERFOJI'S SARASWATI MAHAL. THE TANJORE

ON THE

ISLANDS NANCOWRY AND COMARTY.

BY LIEUT. R. H. COLEBROOKE.

THE island of *Nancowry*, or *Soury*, as it is sometimes called, is nearly centrically situated among the *Nicobar* isles. Its length may be about eight miles, and its breadth nearly equal. The island of *Comarty*, which is near it, is more extensive, but does not perhaps contain more solid land, being excavated by a very large bay from the sea. The space between these two islands forms a capacious and excellent harbour, the eastern entrance of which is sheltered by another island, called *Trikut*, lying at the distance of about a league. The inlet from the west is narrow, but sufficiently deep to admit the largest ships when the wind is fair.

The *Danes* have long maintained a small settlement at this place, which stands on the northernmost point of *Nancowry*, within the harbour. A serjeant and three or four soldiers, a few black slaves, and two rusty old pieces of ordnance, compose the whole of their establishment. They have here two houses, one of which, built entirely of wood, is their habitation; the other, formerly inhabited by their missionaries, serves now for a storehouse.

These islands are in general woody, but contain likewise some portions of clear land. From the sum-

mits of their hills the profpects are often beautiful and romantic. The foil is rich, and probably capable of producing all the various fruits and vegetables common to hot climates. The natural productions of this kind which moftly abound, are cocoa-nuts, *papias*, plantains, limes, tamarinds, beetle-nuts, and the *milóri**, a fpecies of bread-fruit; yams, and other roots, are cultivated and thrive; but rice is here unknown. The *mangoftain*-tree, whofe fruit is fo juftly extolled, grows wild; and pine-apples of a delicious flavour are found in the woods.

The *Nicobar* ifles are but thinly inhabited, and fome of them are not inhabited at all. Of thofe we vifited, *Nancowry* and *Comarty* appeared to be the beft peopled. There were thirteen villages, we were told, upon both iflands; each village might contain, upon an average, fifty or fixty people; fo that the whole population of thefe two will fcarcely amount to eight hundred.

The natives of *Nancowry*, and of the *Nicobar* iflands in general, live on the fea-fhores, and never erect their habitations inland†. Their houfes are of a circular form, and are covered with elliptical domes, thatched with grafs, and the leaves of cocoa-nuts. They are raifed upon piles to the height of fix or eight feet above the ground; the floor and fides are laid with planks, and the afcent is by a ladder. In thofe

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* Mr. *Fontana* has given an accurate and learned defcription of this fruit. Vide *Afiatic Refearches*, 3d vol. p. 161.

† The great *Nicobar* ifland is perhaps an exception, where, it is faid, a race of men exifts, who are totally different in their colour and manners. They are confidered as the *aborigines* of the country. They live in the interior parts, among the mountains, and commit frequent depredations on the peaceable inhabitants of the coafts.

bays or inlets which are ſheltered from the ſurf, they erect them ſometimes ſo near the margin of the water as to admit the tide to flow under, and waſh away the ordure from below.

In front of their villages, and a little advanced in the water, they plant beacons of a great height, which they adorn with tufts made of graſs, or the bark of ſome tree. Theſe objects are diſcernible at a great diſtance, and are intended probably for landmarks; their houſes, which are overſhadowed by thick groves of cocoa-nut trees, ſeldom being viſible from afar.

The *Nicobareans*, though indolent, are in general robuſt and well limbed. Their features are ſomewhat like the *Malays*, and their colour is nearly ſimilar. The women are much inferior in ſtature to the men, but more active in all domeſtic affairs. Contrary to the cuſtom of other natives, they ſhave the hair of their heads, or keep it cloſe cropt, which gives them an uncouth appearance, in the eyes of ſtrangers at leaſt. The dreſs of both ſexes, their mode of life, and ſome of their cuſtoms, have been ſo ably deſcribed by Mr. *Fontana*, that little needs to be ſaid of them here. I have only to ſtate, in addition, an extraordinary ceremony which they annually perform, in honour of the dead.

On the anniverſary of this feſtival, if it can be ſo called, their houſes are decorated with garlands of flowers, fruits, and branches of trees. The people of each village aſſemble, dreſt in their beſt attire, at the principal houſe in the place, where they ſpend the day in a convivial manner; the men, ſitting apart from the women, ſmoke tobacco and intoxicate themſelves; while the latter are nurſing their children and employed in preparation for the mournful buſineſs of the night. At a certain hour of the afternoon, announced

by ſtriking the *Goung* *, the women ſet up the moſt diſmal howls and lamentations, which they continue without intermiſſion until about ſunſet, when the whole party get up, and walk in proceſſion to the burying-ground. Arrived at the place, they form a circle around one of the graves, when a ſtake, planted exactly over the head of the corpſe, is pulled up. The woman who is neareſt of kin to the deceaſed, ſteps out from the crowd, digs up the ſkull, † and draws it up with her hands. At ſight of the bones her ſtrength ſeems to fail her; ſhe ſhrieks, ſhe ſobs; and tears of anguiſh abundantly fall on the mouldering object of her pious care. She clears it from the earth, ſcrapes off the feſtering fleſh, and laves it plentifully with the milk of freſh cocoa-nuts, ſupplied by the byſtanders; after which ſhe rubs it over with an infuſion of ſaffron, and wraps it carefully in a piece of new cloth. It is then depoſited again in the earth, and covered up; the ſtake is replanted, and hung with the various trappings and implements belonging to the deceaſed. They proceed then to the other graves; and the whole night is ſpent in repetitions of theſe diſmal and diſguſtful rites.

On the morning following, the ceremony is concluded by an offering of many fat ſwine; when the ſacrifice made to the dead affords an ample feaſt to the living: they beſmear themſelves with the blood of the ſlaughtered hogs; and ſome, more voracious than

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* An inſtrnment of braſs, ſomewhat like the *Gurry* of *Bengal.* Its ſound is more hollow.

† We were preſent at the ceremony on the 1ſt of *February*, 1790, when the firſt ſkull we ſaw was that of a woman, who had been buried but a few months before. It was then dug up for the firſt time by her daughter. This office, we are told, is always performed by the women, whichever ſex the ſkull belongs to. A man in a fantaſtic garb officiates as prieſt.

others, eat the flesh raw. They have various ways however of dressing their meat, but always eat it without salt. A kind of paste made of the *melóri*, serves them for bread; and they finish their repast with copious potations of *taury*.

The *Nicobareans* are hospitable and honest, and are remarkable for a strict observance of truth, and for punctuality in adhering to their engagements. Such crimes as theft, robbery, and murder, are unknown in these islands; but they do not want spirit to revenge their injuries, and will fight resolutely and slay their enemies, if attacked or unjustly dealt with.* Their only vice, if this failing can be so called, is inebriation; but in their cups they are generally jovial and good humoured. It sometimes however happens at their feasts, that the men of different villages fall out; and the quarrel immediately becomes general. In these cases they terminate their differences in a pitched battle, where the only weapons used are long sticks, of a hard and knotty wood. With these they drub one another most heartily, until no longer able to endure the conflict, they mutually put a stop to the combat, and all get drunk again.

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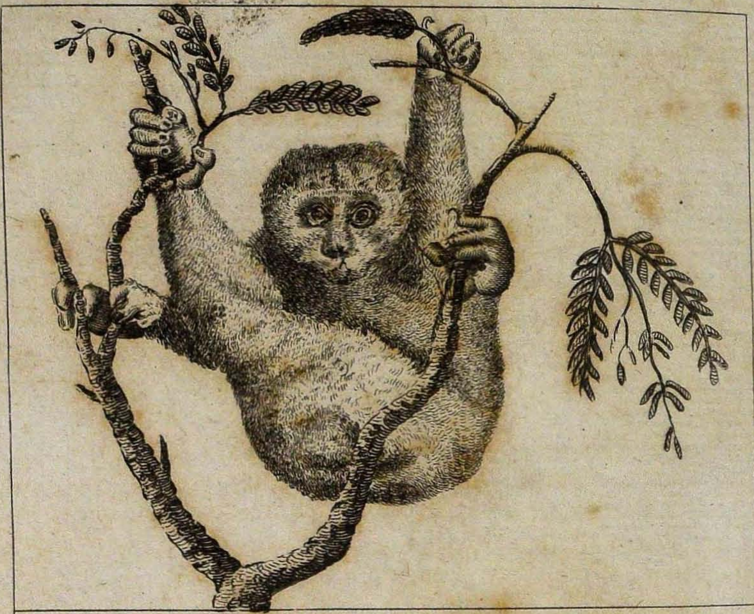
* We were informed, that a party of *Malays* had once landed at *Nancowry*, to commit depredations, and were cut off to a man by the enraged inhabitants. A similar instance of their vengeance is said to have happened at the island *Carnicobar*, when they put to death some sailors who were plundering their houses, and probably attempting to violate their women.

The Loris, or Slow Paced Lemur.



The Yak of Tartary, called Soora-Goy, or Bushey Tailed Bull of Tibet.

ON THE

LORIS, OR SLOW-PACED LEMUR.

BY THE PRESIDENT.

THE ſingular animal, which moſt of you ſaw alive, and of which I now lay before you a perfectly accurate figure, has been very correctly deſcribed by *Linnæus*; except that *ſickled* would have been a juſter epithet than *awled* for the *bent claws* on its hinder indices; and that *the ſize of a ſquirrel* ſeems an improper, becauſe a variable meaſure: its configuration and colours are particularized alſo with great accuracy by M. *Daubenton*; but the ſhort account of the *Loris*, by M. *De Buffon*, appears unſatisfactory, and his engraved repreſentation of it has little reſemblance to nature; ſo little that, when I was endeavouring to find in his work a deſcription of the quadrumane which had juſt been ſent me from *Dacca*, I paſſed over the chapter on the *Loris*, and aſcertained it merely by ſeeing in a note the *Linnæan* character of the ſlow-paced *Lemur*. The illuſtrious *French* naturaliſt, whom, even when we criticiſe a few parts of his noble work, we cannot but name with admiration, obſerves of the *Loris*, that, *from the proportion of its body and limbs, one would not ſuppoſe it ſlow in walking or leaping*; and intimates an opinion, that *Seba* gave this animal the epithet of *ſlow-moving*, from ſome fancied likeneſs to the *Sloth* of *America*: but, though its body be remarkably long in proportion to the breadth

of it, and the hinder legs, or more properly arms, much longer than thoſe before, yet the *Loris*, in fact, walks, or climbs, very ſlowly, and is, probably, unable to leap. Neither its genus nor ſpecies, we find, are new: yet, as its temper and inſtincts are undeſcribed, and as the *Natural Hiſtory* by M. *De Buffon*, or *The Syſtem of Nature* by *Linnæus*, cannot always be readily procured, I have ſet down a few remarks on the *form*, the *manners*, the name, and the *country* of my little favourite, who engaged my affection while he lived, and whoſe memory I wiſh to perpetuate.

I. This male animal had four hands, each five-fingered; palms naked; nails round, except thoſe of the indices behind, which were long, curved, pointed; hair very thick, eſpecially on the haunches, extremely ſoft, moſtly dark grey, varied above with brown and a tinge of ruſſet; darker on the back, paler about the face and under the throat, reddiſh towards the rump; no tail, a dorſal ſtripe, broad, cheſnut coloured, narrower towards the neck; a head almoſt ſpherical; a countenance expreſſive and intereſting; eyes round, large, approximated, weak in the day-time, glowing and animated at night; a white vertical ſtripe between them; eye-laſhes black, ſhort; ears dark, rounded, concave; great acuteneſs at night, both in ſeeing and hearing; a face hairy, flattiſh; a noſe pointed, not much elongated; the upper lip cleft; canine-teeth, comparatively long, very ſharp.

More than this I could not obſerve on the living animal; and he died at a ſeaſon when I could neither attend a diſſection of his body, nor with propriety requeſt any of my medical friends to perform ſuch an operation during the heats of *Auguſt*; but I opened his jaw and counted only two inciſors above,

and as many below, which might have been a defect in the individual; and it is mentioned ſimply as a fact, without any intention to cenſure the generic arrangement of *Linnæus*.

II. In his manners he was for the moſt part gentle, except in the cold ſeaſon, when his temper ſeemed wholly changed; and his Creator, who made him ſo ſenſible of cold, to which he muſt often have been expoſed even in his native foreſts, gave him, probably for that reaſon his thick fur, which we rarely ſee on animals in theſe tropical climates. To me, who not only conſtantly fed him, but bathed him twice a week in water accommodated to the ſeaſons, and whom he clearly diſtinguiſhed from others, he was at all times grateful; but, when I diſturbed him in winter, he was uſually indignant, and ſeemed to reproach me with the uneaſineſs which he felt, though no poſſible precautions had been omitted to keep him in a proper degree of warmth. At all times he was pleaſed with being ſtroked on the head and throat, and frequently ſuffered me to touch his extremely ſharp teeth; but at all times his temper was quick, and when he was unſeaſonably diſturbed, he expreſſed a little reſentment by an obſcure murmur, like that of a ſquirrel, or a greater degree of diſpleaſure by a peeviſh cry, eſpecially in winter, when he was often as fierce on being much importuned, as any beaſt of the woods. From half an hour after ſunriſe to half an hour before ſunſet, he ſlept without intermiſſion, rolled up like a hedge-hog; and as ſoon as he awoke, he began to prepare himſelf for the labours of *his* approaching day, licking and dreſſing himſelf like a cat: an operation which the flexibility of his neck and limbs enabled him to perform very completely; he was then ready for a ſlight breakfaſt, after which he commonly took a ſhort nap; but when the ſun was quite ſet, he recovered all his vivacity. His ordinary food was the

ſweet fruit of his country: plantains always, and mangos during the ſeaſon; but he refuſed peaches, and was not fond of mulberries, or even of guaiavas; milk he lapped eagerly, but was contented with plain water. In general he was not voracious, but never appeared ſatiated with graſshoppers; and paſſed the whole night, while the hot ſeaſon laſted, in prowling for them. When a graſshopper, or any inſect, alighted within his reach, his eyes, which he fixed on his prey, glowed with uncommon fire; and, having drawn himſelf back to ſpring on it with greater force, he ſeized the victim with both his fore-paws, but held it in one of them while he devoured it. For other purpoſes, and ſometimes even for that of holding his food, he uſed all his paws indifferently as hands, and frequently graſped with one of them the higher part of his ample cage, while his three others were ſeverally engaged at the bottom of it; but the poſture of which he ſeemed fondeſt, was to cling with all four of them to the upper wires, his body being inverted; and in the evening he uſually ſtood erect for many minutes playing on the wires with his fingers, and rapidly moving his body from ſide to ſide, as if he had found the utility of exerciſe in his unnatural ſtate of confinement. A little before day-break, when my early hours gave me frequent opportunities of obſerving him, he ſeemed to ſolicit my attention; and if I preſented my finger to him, he licked or nibbled it with great gentleneſs, but eagerly took fruit when I offered it; though he ſeldom eat much at his morning repaſt. When the *day brought back his night*, his eyes loſt their luſtre and ſtrength, and he compoſed himſelf for a ſlumber of ten or eleven hours.

III. The names *Loris* and *Lemur* will, no doubt, be continued by the reſpective diſciples of *Buffon* and *Linnæus*; nor can I ſuggeſt any other, ſince the *Pandits* know little or nothing of the animal. The

lower *Hindus* of this province generally call it *Lajjá-bánar*, or the Baſhful Ape; and the *Muſelmans*, retaining the ſenſe of the epithet, give it the abſurd appellation of a Cat; but it is neither a cat nor baſhful; for though a *Pandit*, who ſaw my *Lemur* by day-light, remarked that he was *Lajjalu*, or *modeſt* (a word which the *Hindus* apply to all *ſenſitive plants*) yet he only ſeemed baſhful, while in fact he was dim-ſighted and drowſy; for at night, as you perceive by his figure, he had open eyes, and as much boldneſs as any of the *Lemures*, poetical or *Linnæan*.

IV. As to his country, the firſt of the ſpecies that I ſaw in *India* was in the diſtrict of *Tipra*, properly *Tripura*, whither it had been brought, like mine, from the *Garrow* mountains; and Dr. *Anderſon* informs me, that it is found in the woods on the coaſt of *Coromandel*. Another had been ſent to a member of our Society from one of the eaſtern iſles; and tho' the *Loris* may be alſo a native of *Sílân*, yet I cannot agree with M. *De Buffon*, that it is the minute, ſociable, and docile animal mentioned by *Thevenot*, which it reſembles neither in ſize nor in diſpoſition.

My little friend was, on the whole, very engaging; and when he was found lifeleſs, in the ſame poſture in which he would naturally have ſlept, I conſoled myſelf with believing that he had died without pain, and lived with as much pleaſure as he could have enjoyed in a ſtate of captivity.

ASTRONOMICAL OBSERVATIONS

MADE IN THE UPPER PARTS OF HINDOSTA'N, AND ON A JOURNEY THENCE TO OUJEIN.

BY WILLIAM HUNTER, ESQ.

BEFORE delivering the following obſervations, it will be proper to give ſome account of the inſtruments with which they are made. The altitudes for determining latitudes and time, were taken with a ſextant of ten inches radius, made by *Troughton:* the limb is divided into degrees and thirds of a degree, and the diviſions on the vernier go to half minutes; ſo that, by the help of the magnifying lens, a difference of ten ſeconds is ſufficiently perceptible. The two ſpecula, being ſcrewed down in their places, do not (as far as I can diſcover) admit of the principal or vertical adjuſtment: but the error was almoſt daily aſcertained by the double menſuration of the ſun's diameter, and conſtantly allowed for. It is ſubtractive; and my determination of its quantity varied from 2′ 30″ to 3′ 30″. Theſe differences may have in part ariſen from a real variation in the quantity of this correction; but I aſcribe them chiefly to ſome inaccuracy in my menſuration of the ſun's diameter. To form ſome judgment of the influence this cauſe might have, I have examined twenty-three of thoſe meaſurements, made between the 7th of *March* and the 7th of *June* (being all of which I have any record)

by taking the medium of the ſun's diameters, as meaſured on the limb, to the right and left of zero, and comparing it with the diameter for that day, as laid down in the *Ephemeris*. It will appear, from a liſt of thoſe obſervations, that my meaſurements commonly exceeded thoſe given in the *Ephemeris*; but the greateſt exceſs was 25″.

MENSURATIONS OF THE SUN'S DIAMETER.

1792.	Adjuſtment of Sextant. Subtract.		Difference of the Sun's diameter, meaſured from that in the Ephemeris.	
March 7	2′	34″	+	8′
9	3	—	+	14
11	2	30	+	14
13	2	52	+	24
15	3	15	+	1
17	3	15	+	3
18	3	7	+	10
19	3	15	+	3
20	3	7	+	25
21	3	15	+	4
22	3	15	+	20
23	3	22	+	12
24	3	8	+	13
25	3	15	+	7
28	3	15	+	9
31	3	15	+	10
April 1	3	15	+	11
3	3	15	+	12
10	3	30	—	3
11	3	15	+	15
17	3	—	+	5
May 29	2	37	—	7
June 7	2	52	+	1

These mensurations may have a farther use, besides ascertaining the adjustment of the quadrant. If the eye could determine, with perfect accuracy, the contact of the limbs, the mean between the two measurements of the sun's diameter would be exactly equal to his apparent diameter, as determined by calculation, and given in the *Ephemeris*; but, from the imperfection of our organs, it happens that the limbs will sometimes appear to be in contact, when a little space remains between them; at others, when they overlap one another: in the former case, the diameter will appear greater; in the latter, less than the truth. But it is probable that, at nearly the same period of time, the state of the eye, or of the sensorium, by which we judge of this contact, is, in the same person, nearly the same. Of this I have made some trials, and found, that, when the sun's diameter, by my mensuration, differed from that in the *Ephemeris*, on repeating the mensurations, at short intervals, the difference remained nearly the same. Therefore, if we observe the sun's altitude a little time before or after measuring his diameter, the contact of the limbs will, probably, appear to take place in the same real situation of those limbs as when we measured the sun's diameter. But here, the effect of too open or too close observation will be reversed; the former making the altitude appear less; the latter, greater than the truth. These measurements then may be applied as corrections of the observed altitude. Thus, if the diameter of the sun has appeared too great, add the quantity of its excess to the angle observed, between the sun and his image in *Mercury*; if it appeared too small, subtract the defect, to give the true angle. Thus, *March* the 13th, the error of the sextant was 2′ 52″ to be subtracted; but the measurement of the sun's diameter exceeds the truth by 24″. Therefore, this quantity

is to be added to the obſerved angle, the obſervation being, probably, ſo much too open.

The angle between the ſun and his image in quickſilver, that day at noon, was 123° 33′ 45″

Error Sextant — 2′ 52″						
Do. Obſervation + 0 24						
—— Diff.		—		2	28	
		2)	123	31	17	
			61	45	38	5
Diff. refr. and parallax		—			26	5
			61	45	12	
Sun's Semidiameter	+	—		16	7	
			62	1	19	
Sun's Declin. South	+	—	2	36	23	
Co-Latitude	—		64	37	42	
Latitude of *Burwa Sagur*	—		25	22	18	

which is 13″ leſs than in the following liſt, where this error was not allowed for.

The ſecondary, or horizontal adjuſtment, made by a ſmall ſcrew at the fore-part of the little ſpeculum, was, from time to time, carefully attended to.

The altitudes were taken by means of the image in quickſilver, which, if the ſun was the object, was defended from the wind by a covering of thin gauze, as recommended by *Mr. Burrow* in the firſt volume of the *Aſiatic Reſearches.* When the altitude of a ſtar was to be taken, this method did not anſwer, as it rendered the image too obſcure. A thick cloth

was therefore properly diſpoſed to windward of the mercury.

The ſmall teleſcope belonging to the ſextant was uſed in all the obſervations.

As the inſtrument is only graduated to 125 degrees, I could not take altitudes exceeding 62 degrees. While the ſun's meridian altitude could be obſerved, I have preferred it for the latitude; but, as this was ſoon about to be impracticable, I began, on the 29th of *February*, to compare the latitudes by meridian altitude, with thoſe obtained from two altitudes and the elapſed time, by the rule in the requiſite tables, in order to judge how far the latter might be depended on. The reſult of the compariſon, which appears in the obſervations from that time to the 15th of *March*, determined me to truſt to thoſe double altitudes, while they could be taken within the preſcribed limits; at the ſame time, comparing them occaſionally with obſervations by a fixed ſtar. From the firſt of *April*, I was obliged to truſt entirely to the ſtars; and, to make the obſervations by them as accurate as poſſible, I have, when circumſtances would allow, taken the meridian altitude of one to the north, and another to the ſouth, of the zenith. The teleſcope is an achromatic, made by *Dolland*, of twenty-eight inches focal diſtance. It inverts the object, and magnifies eighty times.

The watch is made by *Brookbank*, with horizon balance-wheel, and continues to go while winding up. To determine, as accurately as poſſible, the time of an obſervation, I took equal altitudes of the ſun, on the days preceding and following it, and, having thus found the quantity gained or loſt in twenty-four hours, applied to the time of obſervation

a part proportional to its diſtance from the preceding or following noon. In this calculation, allowance was made for the difference of longitude (aſcertained by geometrical ſurveys) if the altitudes on the two days were taken at different places. Beſides this I have, when I had the opportunity, taken the altitudes of two fixed ſtars, one to the eaſt, and another to the weſt of the meridian, within an hour before or after the obſervation, and calculated the time from them.

Observations of Latitude.

1791.		PLACE.	Sun or Star.	Latitude.	REMARKS.
May	24	Agra; monument of Taj Mahl, —	a ♍	27 10 00	Doubtful.
	25	Ditto, —	a ♍	27 10 11	Distinct.
Nov.	1	Lucnow; Mr. Taylor's House, —	⊙	26 51 9	Clear.
	24	Futtehgurh; Mr. Phillips's Bungalow, near the centre of cantonments, —	⊙	27 21 5	Cloudy.
	25	Ditto, —	⊙	27 21 54	Clear.
	26	Ditto, —	⊙	27 22 46	Ditto.
	28	Ditto, —	⊙	27 21 44	Ditto.
Dec.	4	Gureiah village; bearing N ½ E ¼ mile, —	⊙	27 28 42	Ditto.
	9	Ditto, —	⊙	27 29 11	Ditto.
Jan.	24	Dehliah; near the Bungalow, —	⊙	27 21 5	
	25	Nawabgunge; Bungalow, E distant 3 furl.	⊙	27 26 12	
	26	Allygunge; Mosque, S 72 E. —	⊙	27 30 00	
	27	Doomree; Fort, S 22 E distant 2½ furl. —	⊙	27 32 41	Clear, windy.
	28	Sukheet; NW 2½ furl. —	⊙	27 25 15	Sun had begun to fall.
	29	Giroul; Fort, S 10 W 1½ furl. —	⊙	27 11 13	
	30	Shekohabad; Agra-gate, S 55 E 7 furl. —	⊙	27 6 58	
Feb.	1	Feerozabad; Gate, SE 3 furl. —	⊙	27 9 14	
	2	Eätumadpoor; Tank, S 67 W 2 furl, —	⊙	27 14 7	
	3	Agra; monument of Taj Mahl, —	⊙	27 10 22	
	9	Ditto, —	⊙	27 10 38	
	20	Camp at Gober Chokey, —	⊙	27 9 23	Cloudy.
	21	Ditto, —	⊙	27 9 51	Clear.

Obſervations of Latitude.

1792.		PLACE.	Sun or Star.	Latitude.	REMARKS.
Feb.	23	Baad; bearing N 2 E diſtant 3 furl. —	☉	27 3 23	
	24	Munniab; S 30 W 1 furl. —	☉	26 49 48	
	25	Dholpour; S 8 W 3 furl. —	☉	26 41 41	
	27	Choola; Fort, N 44 W 3 —	☉	26 37 25	A cloud came over the ſun before he reached the meridian.
	28	Noorabad; Garden, S 3 E 2 —	☉	26 24 17	Clear and windy.
	29	Gualior; Hill, S 3 E—S 45 E —	☉ M. A.	26 15 7	
		Ditto, —	☉ 2 A.	26 15 38	
Mar.	2	Ditto, —	☉ M. A.	26 14 48	
	6	Antery; Fort, S 10 W diſtant 4 furl. —	☉ M. A.	26 4 20	
	7	Dibborah, — —	☉ M. A.	25 53 43	
		Ditto, —	☉ 2 A.	25 53 51	
	8	Ditteah; S 32 E diſtant 3½ miles, —	☉ M. A.	25 43 1	
		Ditto, —	☉ 2 A.	25 43 9	
	9	Ditto; Rajah's Houſe, NW 3 furl. —	☉ M. A.	25 39 44	
		Ditto, —	☉ 2 A.	25 39 27	
	11	Jhanſy; SE angle fort, N 88 E 2½ furl. —	☉ M. A.	25 27 56	
		Ditto, —	☉ 2 A.	25 28 1	
	12	Ditto, —	☉ M. A.	25 27 45	
	13	Burwah-Sagur; Caſtle, N 51 E 7½ furl. —	☉ M. A.	25 22 31	
		Ditto, —	☉ 2 A.	25 21 16	
	14	Ditto, —	☉ M. A.	25 22 31	Clear.
	15	Pirtipoor; N 80 W—N 18 E 1½ furl. —	☉ M. A.	25 12 53	

Observations of Latitude.

1791.	PLACE.	Sun or Star.	Latitude.	REMARKS.
Mar.	Pirtipoor; N 80 W—N 18 F 1½ furl. —	⊙ 2 A.	25 12 53	
16	Bumaury; N 2 W—N 42 W 1½ furl. —	⊙ 2 A.	24 2 6	
17	Belgaung; N 1 furl. — —	⊙ 2 A.	24 53 11	
18	Teary; N 55 E 2 — —	⊙ 2 A.	24 43 30	
19	Marouny; Fort, S 75 E 2 —	⊙ 2 A.	25 35 11	
20	Sindwaha; N 55 E 2 — —	⊙ 2 A.	24 31 34	
21	Narat; Temple of Hanumân, S 14 E 3½	⊙ 2 A.	24 24 25	
	Ditto, —	β U. M.	24 24 40	
22	Maltown; Fort, N 14 E dist. 10 furl. —	⊙ 2 A.	24 17 30	
23	Khémlásah; N 48 E—N 57 W 2 —	β U. M.	24 13 44	
24	Râmpoor; N 5 E—N 43 W —	⊙ 2 A.	24 6 18	Windy.
	Ditto, —	a ♍	24 7 25	Ditto.
25	Koorwey; Fort, N 42—52 W 3 —	⊙ 2 A.	24 7 34	Ditto.
26	Kirway; close to the village, —	⊙ 2 A.	23 57 31	Ditto.
27	Basouda; N 35 W 3 — —	⊙ 2 A.	23 53 25	Ditto.
	Ditto, —	β U. M.	23 40 56	Clear, moderate, a distinct observat.
28	North Bank of Gulcutta River, —	⊙ 2 A.	23 41 48	Clear calm.
29	B'helsah; S 56 C 4 — —	⊙ 2 A.	23 31 19	Ditto.
	Ditto, —	β U. M.	23 32 1	Ditto.
30	Ditto, —	β U. M.	23 31 39	Ditto.
31	Ditto, —	a ♏	23 32 5	Ditto.
April 1	Golgaung; N 58 E 2 — —	⊙ 2 A.	23 31 33	Clear, moderate.
	Ditto, —	β U. M.	23 28 46	Clear, calm.

Observations of Latitude.

1791.		PLACE.	Sun or Star.	Latitude.	REMARKS.
April	2	Amáry; N 67 E 2 — —	β U. M.	23 25 24	
		Ditto, —	α ♏	23 24 29	
	4	Bopaul; Futtehgurh fort, S 62—68 W 1 mile,	β U. M.	23 15 46	
		Ditto, —	α ♏	23 16 35	
	5	Ditto, —	β ♎	23 15 58	
	7	Pundah; N 42 ES 82 E—1 furl. —	β U. M.	23 13 50	
		Ditto, —	α ♏	23 13 45	
	8	Sehoue; S 85 E $2\frac{1}{2}$ — —	α ♏	23 12 00	
	9	Furher; N 28 55 W $4\frac{1}{2}$ —	β U. M.	23 14 5	
	10	Shujawulpoor; N 18 W N 80 E 3 —	β U. M.	23 24 54	
	11	Beinfroud; N 64 E—S 65 E 1 —	α Hydræ	23 25 54	
	12	Shahjehanpoor; S 83 W —	α Hydræ	23 26 9	
		Ditto, —	β U. M.	23 25 46	
	13	Turána; N 70 W $3\frac{1}{2}$ — —	α Hydræ	23 20 2	
		Ditto, — —	β U. M.	23 19 39	
	14	Tajpoor; clofe to the village, —	α Hydræ	23 14 47	
		Ditto, —	β U. M.	23 13 1	
	15	Oujein; near Rana Khan's Garden, —	α Hydræ	23 12 9	
	16	Ditto, —	α Hydræ	23 12 13	
		Ditto, —	β U. M.	23 10 58	
	18	Ditto, —	α Hydræ	23 12 13	
	19	Ditto, —	β U. M.	23 10 50	
	23	Ditto, —	α ♍	23 11 28	
May	29	Ditto; houfe near Scindiah's palace, —	α ♏	23 11 8	
June	14	Ditto. —	α ♏	23 10 45	

Eclipses of Jupiter's Satellites, observed with Mr. Dolland's Achromatic Telescope, magnifying 80 times.

Apparent Time.	Satell.	Im. or Em.	Place of Observation.	Longitude.	Weather.	Remarks.
1791. D. H. ′ ″				° ′ ″		
May 11 11 58 56	1	Em.	Agra; Monument Taj Mahl,	78 11 00	clear, windy,	
18 7 44 24	2	Em.	Ditto, —	77 58 00	clear, moderate,	
26 10 22 10	2	Em.	Ditto, —	78 22 00	Ditto,	
Jun. 19 10 25 26	1	Em.	Ditto, —	78 27 15	Ditto,	N. B. The immersion also hap-
24 10 13 41	3	Em.	Ditto, —	77 20 30	Ditto,	pened some minutes earlier than it
Dec. 27 17 17 42	3	Em.	Futtehgurh; Mr. Phillips's B.	79 28 15	Ditto,	ought, agreeably to the longitude
31 16 13 26	2	Im.	Ditto, —	79 1 30	Ditto,	commonly assigned to Agra.
1792.						
Jan. 17 17 6 53	1	Im.	Ditto, —	79 32 45	cloudy, calm,	
26 13 24 8	1	Im.	Allygunge, — —	79 00 30	clear, calm,	A distinct observation.
Feb. 1 15 27 52	2	Im.	Feerozabad, — —	78 13 15	Ditto,	
2 15 12 32	1	Im.	Eätumádpoor, — —	78 1 30	Ditto,	Telescope somewhat unsteady.
8 17 57 17	2	Im.	Agra; Monument Taj Mahl,	77 33 00	thin clouds, calm,	Day beginning to break.
9 17 4 19	1	Im.	Ditto, —	77 41 30	clear, calm,	
18 13 27 1	1	Im.	Ditto, —	77 47 30	a little hazy, calm,	A distinct observation.
Mar. 15 10 33 48	3	Im.	Pirtipoor, — —	77 29 15	clear, calm,	
12 31 48	3	Em.	Ditto, —	77 52 00	Ditto,	
21 10 7 5	1	Im.	Narat, — —	78 2 00	Ditto,	
22 9 23 58	2	Im.	Maltown, — —	77 56 15	Ditto,	
28 12 2 4	1	Im.	N. Bank, Gulcutta, R. —	77 44 15	Ditto,	A distinct observation.
29 11 57 13	2	Im.	Bhélsah, — —	72 22 45	Ditto.	Planet at the instant of immersion somewhat obscure.

Eclipses of Jupiter's Satellites, continued.

Apparent Time.	Satellites.	Im. or Em.	Place of Obfervation.	Longitude.	Weather.	Remarks.
1792. H. D. ′ ″				° ′ ″		
Apr. 5 14 31 52	2	Im.	Bopaul. — —	77 9 45	clear, calm,	
6 8 26 6	1	Im.	Ditto, —	77 24 30	Ditto,	
13 10 17 23	1	Im.	Turána, — —	76 10 15	Ditto,	
20 14 22 18	1	Em.	Ugein; near Rana Khan's Gard.	76 19 00	clear, windy,	
22 8 48 49	1	Em.	Ditto, —	75 43 30	clear, moderate,	
23 11 27 55	2	Em.	Ditto, —	75 20 00	Ditto,	
29 10 44 42	1	Em.	Ditto, —	75 48 00	Ditto,	
30 14 4 25	2	Em.	Ditto, —	75 46 45	Ditto,	
May 6 12 40 21	1	Em.	Ditto, —	75 51 15	Ditto,	
13 14 36 11	1	Em.	Ditto, —	76 7 45	Ditto,	
15 9 3 22	1	Em.	Ditto, —	75 46 00	Ditto,	Time from obf. of Regulus—Time
9 2 28	1	Em.	Ditto, —	75 32 30	Ditto,	from eq. alt. of ⊙ on 14th & 16th.
29 12 52 41	1	Em.	Ugein; Houfe near Scindiah's,	76 00 56	hazy,	Satellite emerging, very dim.
June 7 9 14 21	1	Em.	Ditto, —	75 55 00	clear, moderate,	Obfervation very diftinct.
14 11 7 49	1	Em.	Ditto, —	75 56 00	Ditto.	Ditto.

Not having the opportunity of comparing thefe obfervations with contemporary ones taken at Greenwich, or at places the longitudes of which from that obfervatory are afcertained, I have confidered the times of the Eclipfes given in the Ephemeris as accurate, and then deduced the longitude from Greenwich.

Latitudes observed.

1792.		PLACE.	Sun or Star.	Latitude.	REMARKS.
Oct.	7	Oujein; Camp at Shah Dawul's Durgah,	☉ M. A.	23 12 3	Clear, calm.
	8	Ditto, —	ditto,	23 11 45	
1793.					
Feb.	24	Ditto; Camp near Rana Khan's Garden,	ditto,	23 11 30	
Mar.	13	Ditto; Camp at Unk-Pat, —	α Hydræ	23 14 2	
	14	Gutteah, — —	α Hydræ	23 23 55	
	15	Tenauriah, — —	ditto,	23 36 10	
	16	Ager, — — —	ditto,	23 43 48	
	17	Soosner; N 10 68 W distant 2 furl. —	Sirius,	23 56 47	med. 23° 57′ 21″.
			α Hydræ	23 57 56	
	18	Perawa, — — —	ditto,	24 9 11	med. 24° 9′ 14″.
				24 9 18	
	19	Soonel; N 18 W distant 3 58 furl. —	Sirius,	24 12 11	
	21	Julmee; from S to S 35 W distant 2 33 furl.	α Hydræ	24 36 4	
	22	Mucundra, — — —	α Hydræ	24 49 27	
	23	Puchpahar; N 10 E distant 4 5 furl. —	β U. M.	24 59 39	
	24	Anandpoor, — — —	ditto,	25 6 40	
			α ♍	25 7 31	med. 25° 7′ 5″.
	25	Kotah; Camp near Bag-Dur-waza, —	β U. M.	25 11 41	
	28	Gaumuch; S 77 E distant 3 furl. —	ditto,	25 16 56	
	29	Teekeree; S 10—60 W distant 1 furl. —	ditto,	25 20 53	
	30	Boonde; Rajah Mahl, N 42 W —	ditto,	25 26 38	
	31	Dublana; from S to S 80 E distant 1 furl.	ditto,	25 35 45	
Apr.	1	Doogaree; SW — —	ditto,	25 40 00	

Latitudes observed.

1792.		PLACE.	Sun or Star.	Latitude.	REMARKS.
April	2	Bahmen-gaung; E to S 15 E diſtant 1 furl.	β U. M.	25 45 8	Cloudy, uncertain
	3	Ooniara; S to S 53 E diſtant 7 furl. —	Ditto,	25 53 8	Ditto.
	4	Ditto, —	Ditto,	25 54 53	Clear, med. 25° 55′ 4″.
	6	Ditto, —	Ditto,	25 55 15	Clear, moderate, ditto.
	8	Burwarah; S 22 E to N 47 E diſt. extremes, 2 f.	Ditto,	26 3 31	Ditto.
	9	Bhugwunt-gurb; N 30—85 W diſtant 3 furl.	Ditto,	26 9 16	Ditto.
	10	Khernee; S 30—82 E diſtant 1 furl. —	Ditto,	26 16 9	Ditto.
	11	Mularna; S 57—80 W diſtant 3 0 furl. —	Ditto,	26 19 9	Ditto, windy.
	12	Amergurh; S 20 E diſtant 2 furl. —	Ditto,	26 27 9	Ditto, moderate.
	13	Khooſh-hal-gurh; N 55—65 E diſt. 4 furl.	α Hydræ	26 28 9	Ditto, Ditto, med. 26° 28′ 22″
		Ditto, —	β U. M.	26 28 34	Ditto, Ditto, Ditto.
	14	Peelaudoh; N 60—80 E diſtant 3 furl. —	α Hydræ	26 35 54	Ditto, Ditto, med. 26° 36′ 16″
		Ditto, —	β U. M.	26 36 39	Ditto, Ditto, Ditto.
	15	Hindoun; N 12 W to N 80 E diſt. neareſt 1 f.	α Hydræ	26 43 24	Ditto, Ditto, med, 26° 43′ 31″
		Ditto, —	β U. M.	26 43 39	Ditto, Ditto, Ditto.
	16	Surout; S 48 W to W diſtant 2 6 furl. —	β U. M.	26 49 9	Ditto, Ditto, med. 26° 48′ 54″
		Ditto, —	β ♎	26 48 39	Ditto, Ditto, Ditto.
	17	Biana; S 32 W to S 48 E diſtant 1 furl. —	α Hydræ	26 55 40	Ditto, Ditto, med. 26° 55′ 24″
		Ditto, —	β U. M.	66 55 9	Ditto, wind, Ditto.
	18	Rudawul; N 5—50 W diſtant 2 furl. —	α Hydræ	26 58 25	Ditto, moderate.
	19	Kanau; S 69 E to N 88 E diſtant 3 furl. —	Ditto,	27 2 25	Ditto, Ditto, med. 27° 2′ 10″
		Ditto, —	β U. M.	27 1 55	Ditto, Ditto, Ditto.
	20	Futtehpoor; camp within Chunnunp. Durwaza,	α Hydræ	27 5 55	Ditto, Ditto, med. 27° 5′ 43″
		Ditto, —	β U. M.	27 5 32	Ditto, Ditto, Ditto.

Eclipses of Jupiter's Satellites.

Apparent Time.	Satell.	Im. or Em.	Place of Observation.	Longitude.	Weather.	Remarks.
1793. D. H. ′ ″				° ′ ″		
Mar. 24 12 48 26	1	Im.	Anandpoor —	75 25 30	clear, moderate,	
30 13 16 29	2	Im.	Bondee —	75 6 15	Ditto,	
31 14 43 35	1	Im.	Dublana —	75 15 45	Ditto,	
Apr. 6 10 55 26	3	Em.	Ooniara —	76 25 45	Ditto,	The satellite had emerged sometime before I perceived it.
— 15 54 6	2	Im.	Ditto —	75 41 45	Ditto,	By observations of Procyon and Arcturus, at $\frac{1}{2}$ past 9 P. M. watch slow 10′ 56″ and by this the time is adjusted. But on the 7th at $7\frac{1}{2}$ A. M. by the Sun, watch slow, only 8′ 5″, being 2′ 51″ gained in 10 hours. If we allow a proportionable gain to the time of immersion, 1′ 49″ the time was 15° 52′ 17″, and longitude 75° 14′ 30″.
9 11 11 26	1	Im.	Bhugwunt-gurh —	76 2 30	Ditto,	
13 13 1 8	3	Im.	Koosh-hal-gurh —	75 57 3	Ditto,	Med. 76° 3′
— 14 54 38	3	Em.	Ditto —	76 8 30		
16 13 10 24	1	Im.	Surout —	76 51 30	Ditto,	
May 9 13 27 45	1	Im.	Agra, Rozeh Taj Mahl	77 36 45	Ditto.	

1793. Feb. 25th, at Oujein, Moon eclipſed.

At 3 P. M. watch by the Sun	—	10′ 58″ ſlow		
At 12¼ P. M. do.	Procyon	9 59 do.	}	med. 10′ 30″
At 14¾ do.	Lyra —	10 32 do.		

By Watch	14° 14′ —″	
	+ 10 30	
Appar. time,	14 24 30	A ſlight obſcurity began on the Moon's N. E. limb.
	H	
	14 18 —	
	+ 10 30	
	14 28 30	Dark ſhadow diſtinctly ſeen to enter.
	17 00 00	
	+ 10 30	
	17 10 30	Eclipſe ended—Limb clear.

If we reckon the beginning of the eclipſe from the firſt perceptible obſcurity, *i. e.* —	14° 24′ 30″	
Then beginning by *Ephemeris* —	9 23 45	
Difference of Longit. in time, —	5 00 45	75° 11′ 15″
But, reckoning from the entrance of the dark ſhadow, the difference is	5 4 45	76 11 15
The end, by obſervation —	17 10 30	
By *Ephemeris* — —	12 6 30	
	5 4 00	76 00 00
Beginning of obſcurity —	14 24 30	
End — —	71 10 30	
Middle — —	15 47 30	
Ditto, by *Ephemeris* —	10 45 15	
	5 2 15	75 33 45
Duration obſerved —	2 46 00	
By *Ephkemeris* — —	2 42 45	
Exceſs of obſervation —	00 3 15	

As the ſtate of the limbs at the times marked as the beginning of obſcurity and end of the eclipſe were ſimilar, if we add half this difference (1′ 37″) to the firſt of theſe times, and ſubtract it from the laſt, we ſhall have the beginning 14° 26′ 7″

End — .	—	17 8 53
Either of which will give the longitude		75 35 40

REMARK BY THE PRESIDENT.

The obſervations with which Mr. *Hunter* has favoured us, will be a valuable acquiſition to all *Indian* geographers and antiquaries; for ſince *Ujjayinì*, or *Ujjein*, is in the firſt meridian of the *Hindus*, its longitude aſcertains the poſition of *Lancá* on the equator, and fixes the longitude, at leaſt according to the *Hindu* aſtronomers, of *Curucſhétra*, *Vatſa*, the Pool *Sannihita Cánchí*, and other places, which are frequently celebrated in *Sanſcrit* books of the higheſt antiquity. Hence alſo we ſhall poſſibly aſcertain the ſeven *dwípas*, which, on the authority of *Patanjali* and of the *Véda* itſelf, we may pronounce to be neither the *ſeven planets* nor the *ſeven climates*, but great *peninſulas* of this earth, or large tracks of land with *water on both* ſides of them. For example, in a preface to the *Súrya Siddhánta*, the peninſula, called *Sálmala*, is declared to be 422 *Yójanas* to the eaſt of *Lancà*; now a true *Yójana* is equal to $4\frac{1}{4}$ geometrical miles; and the longitude of *Sálmala* will thus bring us to the Gulph of *Siam*, or to the eaſtern *Indian* peninſula beyond *Malacca*. There is a paſſage in one of the *Puránas* which confirms this argument; where king *Srávana* is deſcribed "on the *White Mountain* "in the extenſive region of *Sálmaladwipa*, meditat-"ing on the traces of the divine *foot*, at a place called "*the Station of Trivicrama*." Now we are aſſured by credible travellers, that the *Siameſe* boaſt of a rock in their country, on which a *footſtep*, as they ſay, of *Viſhnu* is clearly diſcernible.

QUESTIONS AND REMARKS ON THE ASTRONOMY OF THE HINDUS.

BY JOHN PLAYFAIR, A. M.
PROFESSOR OF MATHEMATICS, AT EDINBURGH.

WRITTEN 10TH OF OCTOBER, 1792.

PRESUMING on the invitation given with ſo much liberality in the Advertiſement prefixed to the ſecond volume of the *Aſiatic Reſearches*, I have ventured to ſubmit the following queries and obſervations to the Preſident and other Members of the learned Society in *Bengal*.

I.

Are any Books to be found among the Hindus, which treat profeſſedly of Geometry?

I am led to propoſe this queſtion, by having obſerved, not only that the whole of the *Indian* Aſtronomy is a ſyſtem conſtructed with great *geometrical* ſkill, but that the *trigonometrical* rules given in the tranſlation from the *Súrya Siddhánta*, with which Mr. *Davis* has obliged the world, point out ſome very curious theorems, which muſt have been known to the author of that ancient book. The rule, for inſtance, by which the trigonometrical canon of the *Hindu* aſtronomers is conſtructed *, involves in it the following

* 2 Aſiatic Reſearches, 245.

theorem: "If there be three arches of a circle in "arithmetical progreſſion, the ſum of the ſines of the "two extreme arches is to twice the ſine of the mid- "dle arch as the co-ſine of the common difference "of the arches to the radius of the circle." Now this theorem, though not difficult to be demonſtrated, is yet ſo far from obvious, that it ſeems not known to the mathematicians of *Europe* till the beginning of the laſt century, when it was diſcovered by *Vieta*. It has ever ſince been uſed for the conſtruction of trigonometrical tables, as it affords a method of calculating the ſines and arches much eaſier than that which depends on ſucceſſive extractions of the Square Root. To find that this theorem was known to the *Bráhmens* many ages ago, is therefore extremely curious; and the more ſo, becauſe there is ſome reaſon to think that the commentator on the *Siddhánta*, quoted and tranſlated by Mr. *Davis* †, did not underſtand the principle of this rule, ſince the method which he lays down is entirely different, much leſs profound in theory, and much more difficult in practice. If this be true, it indicates a retrograde order in the progreſs of eaſtern ſcience, which muſt have had its origin in a very remote age.

II.

Are any books of Hindu Arithmetic to be procured?

It ſhould ſeem that, if ſuch books exiſt, they muſt contain much curious obſervation, with many abridgments in the labour of calculating, and the like; all which may be reaſonably expected from them, ſince an arithmetical notation, ſo perfect as that of *India*, has exiſted in that country much longer than in any other; but that which moſt of all ſeems to deſerve the attention of the learned, is, the diſcovery ſaid to

† P. 246, 247.

be made of ſomething like *Algebra* among the *Hindus*; ſuch as the expreſſion of number *in general* by certain ſymbols, and the idea of negative quantities. Theſe certainly cannot be too carefully enquired into; and will, it is hoped, be conſidered by the Society of *Calcutta* as a part of that rich mine from which they have already extracted ſo many valuable materials. The problem mentioned by Mr. *Burrow* * proves, that the *Hindus* have turned their attention to certain arithmetical inveſtigations, of which there is no trace in the writings of the *Greek* mathematicians.

III.

Muſt not a complete Tranſlation of the Súrya Siddhánta be conſidered as the grand deſideratum with reſpect to Indian Aſtronomy?

Sir W. Jones gives us reaſon, I think, to hope that this will be executed by Mr. *Davis*; and the ſpecimen which that gentleman has exhibited, leaves as little reaſon to doubt of his abilities to tranſlate the work accurately, as of the great value of the original: I have therefore only to expreſs a wiſh that, if there be any diagrams in the *Súrya Siddhánta*, they may be carefully preſerved.

IV.

Would not a Catalogue Raiſonné, containing an enumeration, and a ſhort account of the Sanſcrit Books on Indian Aſtronomy, be a work highly intereſting and uſeful?

V.

Might not an actual Examination of the Heavens, in company with a Hindu Aſtronomer, to aſcertain

* 2 Aſiatic Reſearches, 495.

all the Stars and Conſtellations, for which there are names in Sanſcrit, prove a moſt valuable addition to our knowledge of Indian Aſtronomy?

Let me here take the liberty of reminding the Preſident of his promiſe to make ſuch an examination; by which the miſtakes concerning the *Indian* Zodiac, ſome of which he has already pointed out, may be deciſively corrected.

VI.

May it not be of conſequence to procure deſcriptions of the principal aſtronomical buildings and inſtruments of which any remains are ſtill to be found, and which are certainly known to be of Hindu origin?

Under this head, I would comprehend not only ſuch works as the *Obſervatory* at *Benares*, which is well deſcribed by Sir *Robert Barker*, but alſo ſuch inſtruments as the *Astrolabe*, mentioned by Mr. *Burrow* in the Appendix to the ſecond volume of the *Aſiatic Reſearches*; and engravings of ſuch inſtruments will be neceſſary to accompany the deſcriptions.

Though in the preceding queſtions there may be nothing that has eſcaped the attention of the Society in *Bengal*, yet they will, perhaps, be forgiven to one who feels himſelf deeply intereſted in the ſubject to which they relate, and who would not loſe even the feebleſt ray of a light, which, without the exertions of the *Aſiatic* Society, muſt periſh for ever.

REMARK BY THE PRESIDENT.

We ſhall concur, I am perſuaded, in giving our public thanks to Profeſſor *Playfair* for the Queſtions which he has propoſed; and in expreſſing our wiſh, that his example may be followed by the learned in *Europe*. Conciſe anſwers to his queries will be given in my next annual diſcourſe; the ſubject of which will compriſe a general account of *Indian* aſtronomy and mathematics. I would long ago have accompliſhed my *deſign* (which I never meant as a *promiſe* to be performed in all events) of examining the heavens in company with an intelligent *Hindu* aſtronomer, if ſuch a companion could have been found in this province; but, though I offered ample ſtipends to any *Hindu* aſtronomer who could name, in *Sanſcrit*, all the conſtellations which I ſhould point out; and to any *Hindu* phyſician who could bring me all the plants named in *Sanſcrit* books, I was aſſured by the *Brahmen* whom I had commiſſioned to ſearch for ſuch inſtructors, that no *Pandit* in *Bengal* even pretended to poſſeſs the knowledge which I required. Lieut. *Wilford*, however, has lately favoured me with a *Sanſcrit* work, procured by him at *Benares*, containing the names, figures, and poſitions of all the aſteriſms known to ancient or modern *Hindus*, not only in the Zodiac, but in both hemiſpheres, and almoſt from pole to pole. That work I tranſlated with attention, and immediately conſigned it to Mr. *Davis*, who, of all men living, is the beſt qualified to exhibit a copious and accurate Hiſtory of *Indian* Aſtronomy.

DISCOURSE THE ELEVENTH.

ON THE

PHILOSOPHY OF THE ASIATICS.

Delivered 20th of February, 1794.

BY THE PRESIDENT.

HAD it been of any importance, Gentlemen, to arrange theſe Anniverſary Diſſertations according to the ordinary progreſs of the human mind, in the gradual expanſion of its three moſt conſiderable powers, *memory*, *imagination*, and *reaſon*, I ſhould certainly have preſented you with an eſſay on the *liberal arts* of the five *Aſiatic* nations, before I produced my remarks on their *abſtract ſciences*; becauſe, from my own obſervation at leaſt, it ſeems evident that *fancy*, or the faculty of combining our ideas agreeably, by various modes of imitation and ſubſtitution, is in general earlier exerciſed, and ſooner attains maturity than the power of ſeparating and comparing thoſe ideas by the laborious exertions of intellect; and hence, I believe, it has happened, that all nations in the world had poets before they had mere philoſophers: but, as *M. D'Alembert* has deliberately placed ſcience before art, as the queſtion of precedence is on this occaſion of no moment whatever, and

as many new facts on the ſubject of *Aſiatic* Philoſophy are freſh in my remembrance, I propoſe to addreſs you now on the ſciences of *Aſia*, reſerving for our next annual meeting a diſquiſition concerning thoſe fine arts which have immemorially been cultivated, with different ſucceſs, and in very different modes, within the circle of our common inquiries.

By ſcience I mean an aſſemblage of tranſcendental propoſitions diſcoverable by human reaſon, and reducible to firſt principles, axioms, or maxims, from which they may all be derived in a regular ſucceſſion: and there are conſequently as many ſciences as there are general objects of our intellectual powers. When man firſt exerts thoſe powers, his objects are *himſelf* and the reſt of *nature*. Himſelf he perceives to be compoſed of *body* and *mind*; and in his *individual* capacity he reaſons on the *uſes* of his animal frame and of its parts, both exterior and internal; on the *diſorders* impeding the regular functions of thoſe parts, and on the moſt probable methods of preventing thoſe diſorders, or of removing them; he ſoon feels the cloſe connexion between his corporeal and mental faculties; and when his *mind* is reflected on itſelf, he diſcourſes on its *eſſence* and its *operations*: in his *ſocial* character, he analyzes his various *duties* and *rights*, both private and public; and in the leiſure which the fulleſt diſcharge of thoſe duties always admits, his intellect is directed to *nature* at large, to the *ſubſtance* of natural bodies, to their ſeveral *properties*, and to their quantity both ſeparate and united, finite and infinite; from all which objects he deduces notions, either purely abſtract and univerſal, or mixed with undoubted facts; he argues from phenomena to theorems, from thoſe theorems to other phenomena; from cauſes to effects, from effects to cauſes, and thus arrives at the demonſtration of a *Firſt Intelligent Cauſe*: whence his collected wiſdom, being

arranged in the form of ſcience, chiefly conſiſts of *phyſiology* and *medicine*, *metaphyſics* and *logic*, *ethics* and *juriſprudence*, *natural philoſophy* and *mathematics*; from which the *religion of nature* (ſince revealed religion muſt be referred to *hiſtory*, as alone affording evidence of it) has in all ages and in all nations been the ſublime and conſoling reſult. Without profeſſing to have given a logical definition of ſcience, or to have exhibited a perfect enumeration of its objects, I ſhall confine myſelf to thoſe *five* diviſions of *Aſiatic* Philoſophy; enlarging for the moſt part on the progreſs which the *Hindus* have made in them, and occaſionally introducing the ſciences of the *Arabs* and *Perſians*, the *Tartars* and the *Chineſe*: but, how extenſive ſoever may be the range which I have choſen, I ſhall beware of exhauſting your patience with tedious diſcuſſions, and of exceeding thoſe limits which the occaſion of our preſent meeting has neceſſarily preſcribed.

I. The firſt article affords little ſcope; ſince I have no evidence that, in any language of *Aſia*, there exiſts one original treatiſe on medicine conſidered as a *ſcience*: phyſic, indeed, appears in theſe regions to have been from time immemorial, as we ſee it practiſed at this day by *Hindus* and *Muſelmans*, a mere empirical *hiſtory* of diſeaſes and remedies; uſeful I admit, in a high degree, and worthy of attentive examination, but wholly foreign to the ſubject before us. Though the *Arabs*, however, have chiefly followed the *Greeks* in this branch of knowledge, and have themſelves been implicitly followed by other *Mohammedan* writers, yet (not to mention the *Chineſe*, of whoſe medical works I can at preſent ſay nothing with confidence) we ſtill have acceſs to a number of *Sanſcrit* books on the old *Indian* practice of phyſic, from which, if the *Hindus* had a theoretical ſyſtem, we might eaſily collect it. The

Ayurvéda, ſuppoſed to be the work of a celeſtial phyſician, is almoſt entirely loſt, unfortunately, perhaps, for the curious *European*, but happily for the patient *Hindu*; ſince a revealed ſcience precludes improvement from experience, to which that of medicine ought, above all others, to be left perpetually open: but I have myſelf met with curious fragments of that primeval work; and, in the *Véda* itſelf, I found with aſtoniſhment an entire *Upaniſhad* on the internal parts of the human body; with an enumeration of the nerves, veins, and arteries; a deſcription of the heart, ſpleen, and liver; and various diſquiſitions on the formation and growth of the fœtus. From the laws, indeed, of *Menu*, which have lately appeared in our own language, we may perceive that the ancient *Hindus* were fond of reaſoning, in their way, on the myſteries of animal generation, and on the comparative influence of the ſexes in the production of perfect offspring; and we may collect from the authorities adduced in the learned Eſſay on *Egypt* and the *Nile*, that their phyſiological diſputes led to violent ſchiſms in religion, and even to bloody wars. On the whole, we cannot expect to acquire many valuable truths from an examination of eaſtern books on ehe ſcience of medicine; but examine them we muſt, if we wiſh to complete the hiſtory of univerſal philoſophy, and to ſupply the ſcholars of *Europe* with authentic materials for an account of the opinions anciently formed on this head by the philoſophers of *Aſia*. To know indeed, with certainty, that ſo much and no more can be known on any branch of ſcience, would in itſelf be very important and uſeful knowledge, if it had no other effect than to check the boundleſs curioſity of mankind, and to fix them in the ſtraight path of attainable ſcience, eſpecially of ſuch as relates to their duties, and may conduce to their happineſs.

II. We have an ample field in the next divifion, and a field almoft wholly new, fince the metaphyfics and logic of the *Bráhmens*, comprifed in their *fix* philofophical *Sáftras*, and explained by numerous gloffes, or comments, have never yet been acceffible to *Europeans*; and, by the help of the *Sanfcrit* language we may now read the works of the *Saugatas*, *Bauddhas*, *Arhatas*, *Jainas*, and other heterodox philofophers, whence we may gather the metaphyfical tenets prevalent in *China* and *Japan*, in the eaftern peninfula of *India*, and in many confiderable nations of *Tartary*. There are alfo fome valuable tracts on thefe branches of fcience, in *Perfian* and *Arabic*, partly copied from the *Greeks*, and partly comprifing the doctrines of the *Súfis*, which anciently prevailed, and ftill prevail in a great meafure over this oriental world; and which the *Greeks* themfelves condefcended to borrow from eaftern fages.

The little treatife in four chapters, afcribed to *Vyáfa*, is the only philofophical *Sáftra*, the original text of which I have had leifure to perufe with a *Bráhmen* of the *Védânti* fchool: it is extremely obfcure, and though compofed in fentences elegantly modulated, has more refemblance to a table of contents, or an accurate fummary, than to a regular fyftematical tract; but all its obfcurity has been cleared by the labour of the very judicious and moft learned *Sancara*, whofe commentary on the *Vedánta* which I read alfo with great attention, not only elucidates every word of the text, but exhibits a perfpicuous account of all other *Indian* fchools, from that of *Capila* to thofe of the more modern heretics. It is not poffible, indeed, to fpeak with too much applaufe of fo excellent a work; and I am confident in afferting, that, until an accurate tranflation of it fhall appear in fome *European* language, the general hiftory of philofophy muft remain incom-

plete; for I perfectly agree with those who are of opinion, that one correct version of any celebrated *Hindu* book would be of greater value than all the dissertations or essays that could be composed on the same subject. You will not, however, expect that, in such a discourse as I am now delivering, I should expatiate on the diversity of *Indian* philosophical schools, on the several founders of them, on the doctrines which they respectively taught, or on their many disciples, who dissented from their instructors in some particular points. On the present occasion, it will be sufficient to say, that the oldest head of a sect, whose entire wotk is preserved, was (according to some authors) *Capila*; not the divine personage, a reputed grandson of *Brahmá*, to whom *Cri'shna* compares himself in the *Gítá*; but a sage of his name, who invented the *San'chya*, or *Numeral* philosophy, which *Cri'shna* himself appears to impugn in his conversation with *Arjuna*; and which, as far as I can collect it from a few original texts, resembled in part the metaphysics of Pythagoras, and in part the theology of *Zeno*. His doctrines were enforced and illustrated, with some additions, by the venerable *Patanjali*, who has also left us a fine comment on the grammatical rules of *Pa'nini*, which are more obscure, without a gloss, than the darkest oracle; and here, by the way, let me add, that I refer to metaphysics the curious and important science of *universal grammar*, on which many subtil disquisions may be found interspersed in the particular grammars of the ancient *Hindus*, and in those of the more modern *Arabs*. The next founder, I believe, of a philosophical school was *Go'tama*; if, indeed, he was not the most ancient of all; for his wife *Ahalya'* was, according to *Indian* legends, restored to a human shape by the great *Ra'ma*; and a sage of his name, whom we have no reason to suppose a different personage, is frequently mentioned in the *Véda* itself: to his rational doctrines

those of *Canáda* were in general conformable; and the philosophy of them both is usually called *Nyáya*, or *logical:* a title aptly bestowed; for it seems to be a system of metaphysics and logic better accommodated than any other anciently known in *India*, to the natural reason and common sense of mankind, admitting the actual existence of *material substance* in the popular acceptation of the word *matter*; and comprising not only a body of sublime dialectics, but an artificial method of reasoning, with distinct names for the three parts of a proposition, and even for those of a regular syllogism. Here I cannot refrain from introducing a singular tradition, which prevailed, according to the well-informed author of the *Dabistán*, in the *Panjáb* and in several *Persian* provinces; that, "among other *Indian* curiosities, "which *Callis'thenes* transmitted to his uncle, was "*a technical system of logic*, which the *Brahmens* "had communicated to the inquisitive *Greek*," and which the *Mohammedan* writer supposes to have been the ground-work of the famous *Aristotlean* method. If this be true, it is one of the most interesting facts that I have met with in *Asia:* and if it be false, it is very extraordinary that such a story should have been fabricated either by the candid *Monshani Fání*, or by the simple *Pársís* and *Pandits*, with whom he had conversed; but, not having had leisure to study the *Nyáya Sástra*, I can only assure you, that I have frequently seen perfect syllogisms in the philosophical writings of the *Bráhmens*, and have often heard them used in their verbal controversies. Whatever might have been the merit or age of *Go'tama*, yet the most celebrated *Indian* school is that, with which I began, founded by *Vyása*, and supported in most respects by his pupil *Jaimini*, whose dissent on a few points is mentioned by his master with respectful moderation: their several systems are frequently distinguished by the names of the first and

ſecond *Mímánſá*; a word which, like *Nyáya*, denotes the operations and concluſions of reaſon; but the tract of *Vyáſa* has in general the appellation of *Védánta*, or the ſcope and end of the *Véda*; on the texts of which, as they were underſtood by the philoſopher who collected them, his doctrines are principally grounded. The fundamental tenet of the *Védánta* ſchool, to which in a more modern age the incomparable *Sancara* was a firm and illuſtrious adherent, conſiſted not in denying the exiſtence of matter, that is, of ſolidity, impenetrability, and extended figure (to deny which would be lunacy) but, in correcting the popular notion of it, and in contending that it has no eſſence independent of mental perception; that exiſtence and perceptibility are convertible terms; that external appearances and ſenſations are illuſory, and would vaniſh into nothing, if the divine energy, which alone ſuſtains them, were ſuſpended but for a moment: an opinion, which *Epicharmus* and *Plato* ſeem to have adopted, and which has been maintained in the preſent century with great elegance, but with little public applauſe; partly becauſe it has been miſunderſtood, and partly becauſe it has been miſapplied by the falſe reaſoning of ſome unpopular writers, who are ſaid to have diſbelieved in the moral attributes of *God*, whoſe omnipreſence, wiſdom, and goodneſs, are the baſis of the *Indian* philoſophy. I have not ſufficient evidence on the ſubject to profeſs a belief in the doctrine of the *Védánta*, which human reaſon alone could, perhaps, neither fully demonſtrate, nor fully diſprove; but it is manifeſt, that nothing can be farther removed from impiety than a ſyſtem wholly built on the pureſt devotion; and the inexpreſſible difficulty which any man, who ſhall make the attempt, will aſſuredly find in giving a ſatisfactory definition of *material ſubſtance*, muſt induce us to deliberate with coolneſs, before we cenſure the learned

and pious reſtorer of the ancient *Véda*; though we cannot but admit, that, if the common opinions of mankind *be* the criterion of philoſophical truth, we muſt adhere to the ſyſtem of *Gótama*, which the *Brámens* of this province almoſt univerſally follow.

If the metaphyſics of the *Védántìs* be wild and erroneous, the pupils of *Buddha* have run, it is aſſerted, into an error diametrically oppoſite; for they are charged with denying the exiſtence of pure ſpirit, and with believing nothing abſolutely and really to exiſt but *material ſubſtance:* a heavy accuſation which ought only to have been made on poſitive and inconteſtible proof, eſpecially by the orthodox *Bráhmens*, who, as *Buddha* diſſented from their anceſtors in regard to *bloody ſacrifices*, which the *Véda* certainly preſcribes, may not unjuſtly be ſuſpected of low and intereſted malignity. Though I cannot credit the charge, yet I am unable to prove it entirely falſe, having only read a few pages of a *Saugata* book, which Captain *Kirkpatrick* had lately the kindneſs to give me; but it begins like other *Hindu* books, with the word *O'm*, which we know to be a ſymbol of the divine attributes; then follows, indeed, a myſterious hymn to the Goddeſs of Nature by the name of *A'ryá*, but with ſeveral other titles, which the *Bráhmens* themſelves continually beſtow on their *Dévì*. Now the *Bráhmens*, who have no idea that any ſuch perſonage exiſts as *Déví*, or the *Goddeſs*, and only mean to expreſs allegorically the *power* of *God*, exerted in creating, preſerving, and renovating this univerſe, we cannot with juſtice infer, that the diſſenters admit no Deity but *viſible nature*. The *Pandit* who now attends me, and who told *Mr. Wilkins* that the *Saugatas* were atheiſts, would not have attempted to reſiſt the deciſive evidence of the contrary, which appears in the very inſtrument on which he was conſulted, if his under-

ſtanding had not been blinded by the intolerant zeal of a mercenary prieſthood. A literal verſion of the book juſt mentioned (if any ſtudious man had learning and induſtry equal to the taſk) would be an ineſtimable treaſure to the compiler of ſuch a hiſtory as that of the laborius *Brucker*. But let us proceed to the *morals* and *juriſprudence* of the *Aſiatics*, on which I could expatiate, if the occaſion admitted a full diſcuſſion of the ſubject, with correctneſs and confidence.

III. That both ethics and abſtract law might be reduced to the *method of ſcience*, cannot ſurely be doubted; but, although ſuch a method would be of infinite uſe in a ſyſtem of univerſal, or even of national juriſprudence, yet the *principles* of morality are ſo few, ſo luminous, and ſo ready to preſent themſelves on every occaſion, that the practical utility of a ſcientifical arrangement, in a treatiſe on ethics, may very juſtly be queſtioned. The moraliſts of the eaſt have, in general, choſen to deliver their precepts in ſhort ſententious maxims, to illuſtrate them by ſprightly compariſons, or to inculcate them in the very ancient form of agreeable apologues. There are indeed, both in *Arabic* and *Perſian*, philoſophical tracts on ethics, written with ſound ratiocination and elegant perſpicuity; but in every part of this eaſtern world, from *Pekin* to *Damaſcus*, the popular teachers of moral wiſdom have immemorially been poets, and there would be no end of enumerating their works, which are ſtill extant in the five principal languages of *Aſia*. Our divine religion, the truth of which (if any hiſtory be true) is abundantly proved by hiſtorical evidence, has no need of ſuch aids as many are willing to give it, by aſſerting, that the wiſeſt men of this world were ignorant of the two great maxims, that *we muſt act in reſpect of others as we ſhould wiſh them to act in reſpect of*

ourſelves, and that, *inſtead* of *returning evil for evil, we ſhould confer benefits, even on thoſe who injure us:* but the firſt rule is implied in a ſpeech of *Lyſias*, and expreſſed in diſtinct phraſes by *Thales* and *Pittaçus*; and I have even ſeen it, word for word, in the original of *Confucius*, which I carefully compared with the *Latin* tranſlation. It has been uſual with zealous men to ridicule and abuſe all thoſe who dare on this point to quote the *Chineſe* philoſopher; but, inſtead of ſupporting their cauſe they would ſhake it, if it could be ſhaken, by their uncandid aſperity; for they ought to remember, that one great end of revelation, as it is moſt expreſſly declared, was not to inſtruct the wiſe and few, but the many and unenlightened. If the converſion, therefore, of the *Pandits* and *Maulavis* in this country ſhall ever be attempted by Proteſtant miſſionaries, they muſt beware of aſſerting, while they teach the goſpel of truth, what thoſe *Pandits* and *Maulavis* would know to be falſe. The former would cite the beautiful *A'ryá* couplet, which was written at leaſt three centuries before our æra, and which pronounces the duty of a good man, even in the moment of his deſtruction, to conſiſt *not only in forgiving, but even in a deſire of benefitting, his deſtroyer, as the* Sandal *tree, in the inſtant of its overthrow, ſheds perfume on the axe which fells it*; and the latter would triumph in repeating the verſe of *Sadi*, who repreſents *a return of good for good as a ſlight reciprocity*; but ſays to the virtuous man, "*Confer benefits on him who has injured thee*; uſing an *Arabic* ſentence, and a maxim apparently of the ancient *Arabs*. Nor would the *Muſelmans* fail to recite four diſtichs of *Háfiz*, who has illuſtrated that maxim with fanciful but elegant alluſions:

Learn from yon orient ſhell to love thy foe,
And ſtore with pearls the hand that brings thee woe:
Free, like yon rock, from baſe vindictive pride,
Emblaze with gems the wriſt that rends thy ſide:

Mark, where yon tree rewards the ſtony ſhow'r;
With fruit nectarious, or the balmy flow'r:
All nature calls aloud; "*ſhall man do leſs*
"*Than heal the ſmiter, and the railer bleſs?*

Now there is not a ſhadow of reaſon for believing that the poet of *Shiraz* had borrowed this doctrine from the *Chriſtians*; but, as the cauſe of *Chriſtianity* could never be promoted by falſehood or error, ſo it will never be obſtructed by candour and veracity; for the leſſons of *Confucius* and *Chanacya*, of *Sadi* and *Háfiz*, are unknown even at this day to millions of *Chineſe* and *Hindus*, *Perſians*, and other *Mahommedans*, who toil for their daily ſupport; nor, were they known ever ſo perfectly, would they have a divine ſanction with the multitude; ſo that, in order to enlighten the minds of the ignorant, and to enforce the obedience of the perverſe, it is evident, *a priori*, that a revealed religion was neceſſary in the great ſyſtem of Providence: but my principal motive for introducing this topic, was to give you a ſpecimen of that ancient oriental morality which is compriſed in an infinite number of *Perſian*, *Arabic*, and *Sanſcrit* compoſitions.

Nearly one half of *juriſprudence* is cloſely connected with ethics; but, ſince the learned of *Aſia* conſider moſt of their laws as poſitive and divine inſtitutions, and not as the mere concluſions of human reaſon; and ſince I have prepared a maſs of extremely curious materials which I reſerve for an introduction to the digeſt of *Indian* laws, I proceed to the fourth diviſion; which conſiſts principally of *ſciences* tranſcendently ſo named, or *the knowledge of abſtract quantities, of their limits, properties, and relations*, impreſſed on the underſtanding with the force of irreſiſtible *demonſtration*; which, as all other knowledge depends, at beſt, on our fallible ſenſes, and in a great

measure on still more fallible testimony, can only be found in pure mental abstractions; though for all the purposes of life our own senses, and even the credible testimony of others, give us in most cases the highest degree of certainty, physical and moral.

IV. I have already had occasion to touch on the *Indian* metaphysics of *natural bodies*, according to the most celebrated of the *Asiatic* schools, from which the *Pythagoreans* are supposed to have borrowed many of their opinions; and, as we learn from *Cicero*, that the old sages of *Europe* had an idea of *centripetal force*, and a principle of *universal gravitation* (which they never indeed attempted to demonstrate) so I can venture to affirm, without meaning to pluck a leaf from the never-fading laurels of our immortal *Newton*, that the whole of his theology, and part of his philosophy, may be found in the *Védas*, and even in the works of the *Súfis*. The *most subtil spirit*, which he suspected to pervade natural bodies, and, lying concealed in them, to cause attraction and repulsion; the emission, reflection, and refraction of light; electricity, calefaction, sensation, and muscular motion, is described by the *Hindus* as a *fifth element*, endued with those very powers; and the *Védas* abound with allusions to a force universally attractive, which they chiefly ascribe to the Sun, thence called *Aditya*, or the *Attractor*: a name designed by the mythologists to mean the Child of the Goddess *Aditi*; but the most wonderful passage on the theory of attraction, occurs in the charming allegorical poem of *Shírín* and *Ferhád*, or the *Divine Spirit* and *a human soul disinterestedly pious*: a work which, from the first verse to the last, is a blaze of religious and poetical fire. The whole passage appears to me so curious, that I make no apology for giving you a faithful translation of it:

"There is a ſtrong propenſity which dances through
"every atom, and attracts the minuteſt particle to
"ſome particular object. Search this univerſe from
"its baſe to its ſummit, from fire to air, from water
"to earth, from all below the Moon to all above
"the celeſtial ſpheres, and thou wilt not find a cor-
"purcle deſtitute of that natural attractability; the
"very point of the firſt thread, in this apparently
"tangled ſkein, is no other than ſuch a principle of
"attraction; and all principles beſide are void of
"a real baſis: from ſuch a propenſity ariſes every
"motion perceived in heavenly, or in terreſtrial
"bodies: it is a diſpoſition to be attracted, which
"taught hard ſteel to ruſh from its place and rivet
"itſelf on the magnet: it is the ſame diſpoſition
"which impels the light ſtraw to attach itſelf firmly
"on amber: it is this quality which gives every
"ſubſtance in nature a tendency toward another,
"and an inclination forcibly directed to a determi-
"nate point." Theſe notions are vague, indeed, and unſatisfactory; but permit me to aſk, whether the laſt paragraph of *Newton*'s incomparable work goes much farther? and whether any ſubſequent experiments have thrown light on a ſubject ſo abſtruſe and obſcure? That the ſublime aſtronomy and exquiſitely beautiful geometry with which that work is illumined, ſhould in any degree be approached by the Mathematicians of *Aſia*, while of all *Europeans* who ever lived, *Archimedes* alone was capable of emulating them, would be a vain expectation; but we muſt ſuſpend our opinion of *Indian* aſtronomical knowledge till the *Súrya Siddhánta* ſhall appear in our own language, and even then (to adopt a phraſe of *Cicero*) our *greedy and capacious ears* will by no means be ſatisfied; for, in order to complete an hiſtorical account of genuine *Hindu* aſtronomy, we require verbal tranſlations of at leaſt three other *Sanſcrit* books; of the treatiſe of *Paraſara* for

the firſt age of *Indian* ſcience; of that by *Varáha*, with the copious comment of his very learned ſon, for the middle age; and of thoſe written by *Bhaſcara* for times comparatively modern. The valuable and now acceſſible works of the laſt mentioned philoſopher, contain alſo an *univerſal*, or *ſpecious* arithmetic, with one chapter at leaſt in geometry; nor would it, ſurely, be difficult to procure, through our ſeveral reſidents with the *Piſhwá* and with *Scindhya*, the older books on algebra, which *Bhaſcara* mentions, and on which Mr. *Davis* would juſtly ſet a very high value; but the *Sanſcrit* work, from which we might expect the moſt ample and important information, is entitled *Cſhétráderſa*, or *a View of Geometrical Knowledge*, and was compiled in a very large volume by order of the illuſtrious *Jayaſinha*, compriſing all that remains on that ſcience in the ſacred language of *India*: it was inſpected in the weſt by a *Pandit* now in the ſervice of Lieutenant *Wilford*, and might, I am perſuaded, be purchaſed at *Jayanagar*, where Colonel *Polier* had permiſſion from the *Rájá* to buy the four *Vedas* themſelves. Thus have I anſwered, to the beſt of my power, the three firſt queſtions obligingly tranſmitted to us by Profeſſor *Playfair*,—Whether the *Hindus* have books in *Sanſcrit* expreſſly on geometry? Whether they have any ſuch on arithmetic? and, Whether a tranſlation of the *Súrya Siddhánta* be not the great *deſideratum* on the ſubject of *Indian* aſtronomy? To his three laſt queſtions,—Whether an accurate ſummary account of all the *Sanſcrit* works on that ſubject? A delineation of the *Indian* celeſtial ſphere, with correct remarks on it? and, A deſcription of the aſtronomical inſtruments uſed by the ancient *Hindus*, would not ſeverally be of great utility? we cannot but anſwer in the affirmative, provided that the utmoſt critical ſagacity were applied in diſtinguiſhing ſuch works

conſtellations, and inſtruments, as are clearly of *Indian* origin, from ſuch as were introduced into this country by *Muſelman* aſtronomers from *Tartary* and *Perſia*, or in later days by mathematicians from *Europe*.

V. From all the properties of man and of nature, from all the various branches of ſcience, from all the deductions of human reaſon, the general corollary, admitted by *Hindus*, *Arabs*, and *Tartars*, by *Perſians*, and by *Chineſe*, is the ſupremacy of an all-creating and all-preſerving Spirit, infinitely wiſe, good, and powerful, but infinitely removed from the comprehenſion of his moſt exalted creatures; nor are there in any language (the ancient *Hebrew* always excepted) more pious and ſublime addreſſes to the Being of beings, more ſplendid enumerations of his attributes, or more beautiful deſcriptions of his viſible works, than in *Arabic*, *Perſian*, and *Sanſcrit*, eſpecially in the *Koran*, the introductions of the poems of *Sadí*, *Nizámí*, and *Firdaus'i*, the four *Védás* and many parts of the numerous *Purànas*: but ſupplication and praiſe would not ſatisfy the boundleſs imagination of the *Vedánti* and *Súfì* theologiſts, who, blending uncertain metaphyſics with undoubted principles of religion, have preſumed to reaſon confidently on the very nature and eſſence of the divine ſpirit, and aſſerted in a very remote age, what multitudes of *Hindus* and *Muſſelmans* aſſert at this hour, that all ſpirit is homogeneous; that the ſpirit of *God* is in *kind* the ſame with that of man, though differing from it infinitely in *degree*; and that, as material ſubſtance is mere illuſion, there exiſts in this univerſe only one generic ſpiritual ſubſtance, the ſole primary cauſe, efficient, ſubſtantial, and formal of all ſecondary cauſes and of all appearances whatever, but endued, in its higheſt degree, with a ſublime providential wiſdom,

and proceeding by ways incomprehenſible to the ſpirits which emane from it: an opinion which *Gótama* never taught, and which we have no authority to believe, but which, as it is grounded on the doctrine of an immaterial Creator ſupremely wiſe, and a conſtant Preſerver ſupremely benevolent, differs as widely from the pantheiſm of *Spinoza* and *Toland* as the affirmation of a propoſition differs from the negociation of it; though the laſt-named profeſſor of that *inſane philoſophy* had the baſeneſs to conceal his meaning under the very words of Saint *Paul*, which are cited by *Newton* for a purpoſe totally different, and has even uſed a phraſe which occurs, indeed, in the *Véda*, but in a ſenſe diametrically oppoſite to that which he would have given it. The paſſage to which I allude, is in a ſpeech of *Varuna* to his ſon, where he ſays, "That ſpirit, from which theſe created "beings proceed; through which, having proceeded "from it, they live; toward which they tend, and "in which they are ultimately abſorbed,—that ſpirit "ſtudy to know; that ſpirit is the Great One."

The ſubject of this diſconrſe, Gentlemen, is inexhauſtible: it has been my endeavour to ſay as much on it as poſſible in the feweſt words; and, at the beginning of next year, I hope to cloſe theſe general diſquiſitions with topies meaſureleſs in extent, but leſs abſtruſe than that which has this day been diſcuſſed; and better adapted to the gaiety which ſeems to have prevailed in the learned banquets of the *Greeks*, and which ought ſurely to prevail in every ſympoſiac aſſembly.

A DISCOURSE

DELIVERED AT

A MEETING OF THE ASIATIC SOCIETY,

ON THE 22d OF MAY, 1794.

BY SIR JOHN SHORE, BART. PRESIDENT.

IF I had consulted my competency only, for the station which your choice has conferred upon me, I must, without hesitation, have declined the honour of being the President of this Society; and although I most cheerfully accept your invitation, with every inclination to assist, as far as my abilities extend, in promoting the laudable views of our association, I must still retain the consciousness of those disqualifications, which you have been pleased to overlook.

It was lately our boast to possess a President, whose name, talents, and character, would have been honourable to any institution; it is now our misfortune to lament, that Sir *William Jones* exists but in the affections of his friends, and in the esteem, veneration, and regret of all.

I cannot, I flatter myself, offer a more grateful tribute to the Society, than by making his character

the ſubject of my firſt addreſs to you; and if in the delineation of it, fondneſs or affection for the man ſhould appear blended with my reverence for his genius and abilities, in the ſympathy of your feelings I ſhall find my apology.

To define, with accuracy, the variety, value, and extent of his literary attainments, requires more learning than I pretend to poſſeſs; and I am therefore to ſolicit your indulgence for an imperfect ſketch, rather than expect your approbation for a complete deſcription, of the talents and knowledge of your late and lamented Preſident.

I ſhall begin with mentioning his wonderful capacity for the acquiſition of languages, which has never been excelled. In *Greek* and *Roman* literature, his early proficiency was the ſubject of admiration and applauſe; and knowledge of whatever nature, once obtained by him, was ever afterwards progreſſive. The more elegant dialects of modern *Europe*, the *French*, the *Spaniſh*, and the *Italian*, he ſpoke and wrote with the greateſt fluency and preciſion; and the *German* and *Portugueſe* were familiar to him. At an early period of life his application to oriental literature commenced: he ſtudied the *Hebrew* with eaſe and ſucceſs; and many of the moſt learned *Aſiatics* have the candour to avow, that his knowledge of *Arabic* and *Perſian* was as accurate and extenſive as their own; he was alſo converſant in the *Turkiſh* idiom; and the *Chineſe* had even attracted his notice ſo far, as to induce him to learn the radical characters of that language, with a view perhaps to further improvements. It was to be expected, after his arrival in *India*, that he would eagerly embrace the opportunity of making himſelf maſter of the *Shanſcrit*; and the moſt enlightened profeſſors of the doctrines of *Brahma*, confeſs, with pride, de-

light, and ſurprize, that his knowledge of their ſacred dialect was moſt critically correct and profound. The *Pandits*, who were in the habit of attending him, when I ſaw them after his death, at a public *Durbar*, could neither ſuppreſs their tears for his loſs, nor find terms to expreſs their admiration at the wonderful progreſs he had made in their ſciences.

Before the expiration of his twenty-ſecond year, he had completed his Commentaries on the Poetry of the *Aſiatics*, although a conſiderable time afterwards elapſed before their publication; and this work, if no other monument of his labours exiſted, would at once furniſh proofs of his conſummate ſkill in the oriental dialects, of his proficiency in thoſe of *Rome* and *Greece*, of taſte and erudition far beyond his years, and of talents and application without example.

But the judgment of Sir *William Jones* was too diſcerning to conſider language in any other light than as the key of ſcience; and he would have deſpiſed the reputation of a mere linguiſt. Knowledge and truth were the objects of all his ſtudies, and his ambition was to be uſeful to mankind. With theſe views, he extended his reſearches to all languages, nations, and times.

Such were the motives that induced him to propoſe to the government of this country, what he juſtly denominated a work of national utility and importance; the compilation of a copious Digeſt of *Hindu* and *Mahommedan* Law, from *Shanſcrit* and *Arabic* originals, with an offer of his ſervices to ſuperintend the compilation, and with a promiſe to tranſlate it. He had foreſeen, previous to his departure from *Europe*, that without the aid of ſuch a work, the wiſe and benevolent intentions of the legiſlature of *Great Britain*, in leaving, to a certain extent, the na-

tives of theſe provinces in poſſeſſion of their own laws, could not be completely fulfilled; and his experience, after a ſhort reſidence in *India*, confirmed what his ſagacity had anticipated, that without principles to refer to, in a language familiar to the judges of the courts, adjudications amongſt the natives muſt too often be ſubject to an uncertain and erroneous expoſition, or wilful miſinterpretation of their laws.

To the ſuperintendence of this work, which was immediately undertaken at his ſuggeſtion, he aſſiduouſly devoted thoſe hours which he could ſpare from his profeſſional duties. After tracing the plan of the digeſt, he preſcribed its arrangement and mode of execution, and ſelected from the moſt learned *Hindus* and *Mahommedans* fit perſons for the taſk of compiling it. Flattered by his attention, and encouraged by his applauſe, the *Pandits* proſecuted their labours with cheerful zeal, to a ſatisfactory concluſion. The *Moluvees* have alſo nearly finiſhed their portion of the work; but we muſt ever regret that the promiſed tranſlation, as well as the meditated preliminary diſſertation, have been fruſtrated by that decree which ſo often intercepts the performance of human purpoſes.

During the courſe of this compilation, and as an auxiliary to it, he was led to ſtudy the works of *Menu*, reputed by the *Hindus* to be the oldeſt and holieſt of legiſlators; and finding them to comprize a ſyſtem of religious and civil duties, and of law in all its branches, ſo comprehenſive and minutely exact, that it might be conſidered as the inſtitutes of *Hindu* law, he preſented a tranſlation of them to the Government of *Bengal*. During the ſame period, deeming no labour exceſſive or ſuperfluous that tended, in any reſpect, to promote the welfare or happineſs of mankind, he gave the public an *Engliſh* verſion of the *Arabic* text of the *Sirajiyyah*, or *Ma-*

hommedan Law of Inheritance, with a Commentary. He had already publiſhed in *England*, a tranſlation of a tract on the ſame ſubject, by another *Mahommedan* lawyer, containing, as his own words expreſs, a lively and elegant epitome of the Law of Inheritance, according to *Zaid*.

To theſe learned and important works, ſo far out of the road of amuſement, nothing could have engaged his application but that deſire which he ever profeſſed, of rendering his knowledge uſeful to his own nation, and beneficial to the inhabitants of theſe provinces.

Without attending to the chronological order of their publication, I ſhall briefly recapitulate his other performances in *Aſiatic* Literature, as far as my knowledge and recollection of them extend.

The vanity and petulence of *Anquetil du Perron*, with his illiberal reflections on ſome of the learned Members of the Univerſity of *Oxford*, extorted from him a letter in the *French* language, which has been admired for accurate criticiſm, juſt ſatire, and elegant compoſition. A regard for the literary reputation of his country, induced him to tranſlate from a *Perſian* original into *French*, the Life of *Nadir Shah*, that it might not be carried out of *England*, with a reflection that no perſon had been found in the *Britiſh* dominions capable of tranſlating it. The ſtudents of *Perſian* literature muſt ever be grateful to him for a grammar of that language, in which he has ſhewn the poſſibility of combining taſte and elegance with the preciſion of a grammarian; and every admirer of *Arabic* poetry muſt acknowledge his obligations to him for an *Engliſh* verſion of the ſeven celebrated poems, ſo well known by the name of *Moallakat*, from the diſtinction to which their excellence had entitled them

of being ſuſpended in the temple of *Mecca*. I ſhould ſcarcely think it of importance to mention, that he did not diſdain the office of Editor of a *Shanſcrit* and *Perſian* work, if it did not afford me an opportunity of adding, that the latter was publiſhed at his own expence, and was ſold for the benefit of inſolvent debtors. A ſimilar application was made of the produce of the *Sirajiyyah*.

Of his lighter productions, the elegant amuſements of his leiſure hours, comprehending hymns on the *Hindu* mythology; poems, conſiſting chiefly of tranſlations from the *Aſiatic* languages; and the verſion of *Sacontala*, an ancient *Indian* drama,— it would be unbecoming to ſpeak in a ſtyle of importance which he did not himſelf annex to them. They ſhew the activity of a vigorous mind, its fertility, its genius, and its taſte. Nor ſhall I particularly dwell on the diſcourſes addreſſed to this Society, which we have all peruſed or heard, or on the other learned and intereſting diſſertations, which form ſo large and valuable a portion of the records of our reſearches; let us lament that the ſpirit which dictated them is to us extinct; and that the voice to which we liſtened with improvement and rapture, will be heard by us no more.

But I cannot paſs over a paper, which has fallen into my poſſeſſion ſince his demiſe, in the handwriting of Sir *William Jones* himſelf, entitled *Deſiderata*, as more explanatory than any thing I can ſay of the comprehenſive views of his enlightened mind. It contains, as a peruſal of it will ſhew, whatever is moſt curious, important, and attainable, in the ſciences and hiſtories of *India*, *Arabia*, *China*, and *Tartary*; ſubjects which he had already moſt amply diſcuſſed in the diſquiſitions which he laid before the Society.

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL.

DESIDERATA.

INDIA.

I.

The Ancient Geography of *India*, &c. from the *Puránas*

II.

A Botanical Defcription of *Indian* Plants, from the *Cóshas*, &c.

III.

A Grammar of the *Sanfcrit* Language, from *Pánini*, &c.

IV.

A Dictionary of the *Sanfcrit* Language, from thirty-two original Vocabularies and *Niructi*.

V.

On the Ancient Mufic of the *Indians*.

VI.

On the Medical Subftances of *India*, and the *Indian* Art of Medicine.

VII.

On the Philofophy of the Ancient *Indians*.

VIII.

A Tranflation of the *Véda*.

IX.

On Ancient *Indian* Geometry, Aftronomy, and Algebra.

X.

A Tranflation of the *Puránas*.

XI.

Tranſlations of the *Mahábharat Rámáyan.*

XII.

On the *Indian* Theatre, &c. &c.

XIII.

On the *Indian Conſtellations*, with their Mythology, from the *Puránas.*

XIV.

The Hiſtory of *India* before the *Mahommedan* Conqueſt. From the *Sanſcrit-Caſhmír* Hiſtories.

ARABIA.

XV.

The Hiſtory of *Arabia* before *Muhammed.*

XVI.

A Tranſlation of the *Hamáſa.*

XVII.

A Tranſlation of *Harírí.*

XVIII.

A Tranſlation of the *Fáchatúl Khulafá*
Of the *Cáfiah.*

PERSIA.

XIX.

The Hiſtory of *Perſia*, from Authorities in *Sanſcrit*, *Arabic*, *Greek*, *Turkiſh*, *Perſian*, ancient and modern.

Firdauſi's-Khoſrau náma.

XX.

The five Poems of *Nizámi*, tranſlated in proſe.
A Dictionary of pure *Perſian*. *Jehangire.*

CHINA.

XXI.

A Tranſlation of the *Shi-cing*.

XXII.

The Text of *Can-fu-tſu* verbally tranſlated.

TARTARY.

XXIII.

A Hiſtory of the *Tartar* Nations, chiefly of the *Moguls* and *Othmans*, from the *Turkiſh* and *Perſian*.

We are not authorized to conclude that he had himſelf formed a determination to complete the works which his genius and knowledge had thus ſketched; the taſk ſeems to require a period beyond the probable duration of any human life; but we who had the happineſs to know Sir *William Jones*, who were witneſſes of his indefatigable perſeverance in the purſuit of knowledge, and of his ardour to accompliſh whatever he deemed important, who ſaw the extent of his intellectual powers, his wonderful attainments in literature and ſcience, and the facility with which all his compoſitions were made, cannot doubt, if it had pleaſed Providence to protract the date of his exiſtence, that he would have ably executed much of what he had ſo extenſively planned.

I have hitherto principally confined my diſcourſe to the purſuits of our late Preſident, in oriental literature, which, from their extent, might appear to have occupied all his time; but they neither precluded his attention to profeſſional ſtudies, nor to ſcience in general. Amongſt his publications in *Europe*, in polite literature, excluſive of various compoſitions in proſe and verſe, I find a tranſlation of the Speeches of *Iſæus*, with a learned comment; and in law, an Eſſay on the Law of Bailments. Upon the ſubject of

this last work, I cannot deny myself the gratification of quoting the sentiments of a celebrated historian:—"Sir *William Jones* has given an ingenious and rational Essay on the Law of Bailments. He is perhaps the only lawyer equally conversant with the year-books of *Westminster*, the Commentaries of *Ulpian*, the Attic Pleadings of *Isæus*, and the Sentences of *Arabian* and *Persian Cadhis*."

His professional studies did not commence before his twenty-second year: and I have his own authority for asserting, that the first book of *English* jurisprudence which he ever studied, was *Fortescue*'s Essay, in Praise of the Laws of *England*.

Of the ability and conscientious integrity with which he discharged the functions of a Magistrate, and the duties of a Judge of the Supreme Court of Judicature, in this settlement, the public voice and public regret bear ample and merited testimony. The same penetration which marked his scientific researches, distinguished his legal investigations and decisions; and he deemed no inquiries burthensome which had for their object substantial justice under the rules of law.

His addresses to the jurors are no less distinguished for philanthropy and liberality of sentiment, than for just expositions of the law, perspicuity and elegance of diction; and his oratory was as captivating as his arguments were convincing.

In an epilogue to his Commentaries on *Asiatic* Poetry, he bids farewell to polite literature, without relinquishing his affection for it; and concludes with an intimation of his intention to study law, expressed in a wish which we now know to have been prophetic.

Mihi sit oro, non inutilis toga,
Nec indiserta lingua, nec turpis manus!

I have already enumerated attainments and works which, from their diverſity and extent, ſeem far beyond the capacity of the moſt enlarged minds; but the catalogue may yet be augmented. To a proficiency in the languages of *Greece*, *Rome*, and *Aſia*, he added the knowledge of the philoſophy of thoſe countries, and of every thing curious and valuable that had been taught in them. The doctrines of the *Academy*, the *Lyceum*, or the *Portico*, were not more familiar to him than the tenets of the *Vèdas*, the myſticiſm of the *Sufis*, or the religion of the ancient *Persians*; and whilſt with a kindred genius he peruſed with rapture the heroic, lyric, or moral compoſitions of the moſt renowned poets of *Greece*, *Rome*, and *Aſia*, he could turn with equal delight and knowledge to the ſublime ſpeculations, or mathematical calculations of *Barrow* and *Newton*. With them alſo he profeſſed his conviction of the truth of the *Chriſtian* religion; and he juſtly deemed it no inconſiderable advantage that his reſearches had corroborated the multiplied evidence of revelation, by confirming the *Moſaic* account of the primitive world. We all recollect, and can refer to the following ſentiments in his Eighth Anniverſary Diſcourſe.

" Theological inquiries are no part of my pre-
" ſent ſubject; but I cannot refrain from adding,
" that the collection of tracts, which we call from
" their excellence the Scriptures, contain independ-
" ently of a divine origin, more true ſublimity,
" more exquiſite beauty, purer morality, more im-
" portant hiſtory, and finer ſtrains both of poetry and
" eloquence, than could be collected within the ſame
" compaſs from all other books that were ever com-
" poſed in any age, or in any idiom. The two
" parts, of which the ſcriptures conſiſt, are connected
" by a chain of compoſitions, which bear no reſem-
" blance in form or ſtyle to any that can be produced

"from the ſtores of *Grecian*, *Indian*, *Perſian*, or even "*Arabian* learning. The antiquity of thoſe compo- "ſitions no man doubts, and the unreſtrained appli- "cation of them to events long ſubſequent to their "publication, is a ſolid ground of belief that they "were genuine predictions, and conſequently inſpired."

There were, in truth, few ſciences in which he had not acquired conſiderable proficiency; in moſt his knowledge was profound. The theory of muſic was familiar to him, nor had he neglected to make himſelf acquainted with the intereſting diſcoveries lately made in Chemiſtry; and I have heard him aſſert, that his admiration of the ſtructure of the human frame, had induced him to attend for a ſeaſon to a courſe of anatomical lectures, delivered by his friend the celebrated *Hunter*.

His laſt and favourite purſuit was the ſtudy of *Botany*, which he originally began under the confinement of a ſevere and lingering diſorder; which, with moſt minds, would have proved a diſqualification from any application. It conſtituted the principal amuſement of his leiſure hours. In the arrangements of *Linnæus* he diſcovered ſyſtem, truth, and ſcience, which never failed to captivate and engage his attention; and, from the proofs which he has exhibited of his progreſs in *Botany*, we may conclude that he would have extended the diſcoveries in that ſcience. The laſt compoſition which he read in this Society, was a deſcription of ſelect *Indian* plants: and I hope his Executors will allow us to fulfil his intention of publiſhing it in a number of our Reſearches.

It cannot be deemed uſeleſs or ſuperfluous to enquire, by what arts or method he was enabled to attain to a degree of knowledge, almoſt univerſal, and apparently beyond the powers of man, during a life little exceeding forty-ſeven years.

The faculties of his mind, by nature vigorous, were improved by constant exercise: and his memory, by habitual practice, had acquired a capacity of retaining whatever had once been impressed upon it. To an unextinguished ardour for universal knowledge, he joined a perseverance in the pursuit of it, which subdued all obstacles; his studies began with the dawn, and, during the intermissions of professional duties, were continued throughout the day; reflection and meditation strengthened and confirmed what industry and investigation had accumulated. It was a fixed principle with him, from which he never voluntarily deviated, not to be deterred by any difficulties that were surmountable, from prosecuting to a successful termination what he had once deliberately undertaken.

But what appears to me more particularly to have enabled him to employ his talents so much to his own and the public advantage, was the regular allotment of his time to particular occupations, and a scrupulous adherence to the distribution which he had fixed; hence, all his studies were pursued without interruption or confusion: nor can I here omit remarking, what may probably have attracted your observation as well as mine, the candour and complacency with which he gave his attention to all persons, of whatever quality, talents, or education: he justly concluded that curious or important information might be gained even from the illiterate; and wherever it was to be obtained, he sought and seized it.

Of the private and social virtues of our lamented President, our hearts are the best records. To you who knew him, it cannot be necessary for me to expatiate on the independence of his integrity, his humanity, probity, or benevolence, which every living creature participated; on the affability of his conver-

ſation and manners, or his modeſt unaſſuming deportment; nor need I remark that he was totally free from pedantry, as well as from arrogance and ſelf-ſufficiency, which ſometimes accompany and diſgrace the greateſt abilities: his preſence was the delight of every ſociety, which his converſation exhilarated and improved; and the public have not only to lament the loſs of his talents and abilities, but that of his example.

To him, as the Founder of our Inſtitution, and whilſt he lived its firmeſt ſupport, our reverence is more particularly due: inſtructed, animated, and encouraged by him, genius was called forth into exertion, and modeſt merit was excited to diſtinguiſh itſelf. Anxious for the reputation of the Society, he was indefatigable in his own endeavours to promote it, whilſt he cheerfully aſſiſted thoſe of others. In loſing him, we have not only been deprived of our brighteſt ornament, but of a guide and patron, on whoſe inſtructions, judgment, and candour, we could implicitly rely.

But it will, I truſt, be long, very long, before the remembrance of his virtues, his genius, and abilities, loſe that influence over the Members of this Society which his living example had maintained; and if, previous to his demiſe, he had been aſked, by what poſthumous honours or attentions we could beſt ſhew our reſpect for his memory, I may venture to aſſert he would have replied, "by exerting yourſelves to ſupport the credit of the Society;" applying to it, perhaps, the dying wiſh of Father PAUL, "Eſto perpetua."

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	29.79		.88		
	.79	.88	.87	.79	.78
	.79				
.84	.79				
				.79	
.84		.88	.86		.78
.84		.88	.86	.81	
.83		.90	.88		.79
.83	.83	.96	.88	.85	.82
.84	.85	.98	.89	.87	.85
.84		.98		.87	
.84	.86	.98	.90		.85
.84	.86	.95	.90	.88	.85
.84		.95	.90	.89	.85
.84	.86	.95	.88		
.84	.86	.95	.87	[illegible]	
.84	.86			.83	.86
.83	.86	.82	.85		.86
.84	.84		.81		.85
.83	.82	.92	.82		.82
	.81	.88	.82	29.81	.80
.83	.80	.88	.82	.79	
	.80		.82	.79	.80
	.80	.86	.82		.80
	.80		.82	.79	.79
	.80			.78	.79
			.82		
	.80				
				.78	
	.79			.78	.79
			.82		.82
	.79			.78	.82
	.79	.88		.78	.82
	.79	.89	.80	.78	.82
		.90	.80		.83
		.91	.80	.78	.84
		.91		.78	.84
		.91	.87	.78	.84
				.78	.84
				[illegible]	

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL.

A TREATISE ON THE BAROMETER.

BY FRANCIS BALFOUR, ESQ.

I.

IN a Treatiſe, publiſhed at this place a few weeks ago, on Sol-Lunar Influence in Fevers, I have endeavoured to ſhew, "*That all Fevers are liable to certain diurnal and ſeptenary* revolutions; and that theſe revolutions are uniformly and conſtantly connected with fixed periods of time.*"

II.

Having eſtabliſhed this propoſition (1.) it was natural to ſuppoſe that the power or influence which is capable of producing theſe very remarkable and intereſting revolutions on the human conſtitution, at certain intervals, did not exert itſelf without effecting, at the ſame time, ſome correſponding periodical change in the ſtate of that element in which we conſtantly exiſt; and in which all the operations of life and nature are carried on.

Other neceſſary avocations having hitherto prevented me from being able to make thoſe experiments myſelf that are required for deciding on this

* That is to ſay, changes happening after an interval of ſeven or eight days.

question, I applied to Mr. *Farquhar*, who, I understood, had paid some attention to this subject; and was favoured with the following very obliging and instructive letter:

TO DOCTOR BALFOUR.

DEAR SIR,

"You likewise desire me to give you some account of the regular diurnal variations of the Barometer which take place in this country; and which, I said, I conceived to be peculiar to tropical climates, from the otherwise unaccountable silence of every author whose work I had been able to consult on the subject. The first intimation of this was from Mr. *Henry Trail*, who informed me that he had observed the Mercury to rise every night till about eleven o'clock, when it became stationary. I immediately repeated his observations, and found that the fact was certain; but that there was likewise another diurnal variation, which had escaped his notice. After numerous observations, at all hours during the day and night, I found that the Mercury is subject to the following variations, with the utmost degree of regularity, throughout the whole year. From six in the morning till between seven and eight, it is stationary; it then rises till nine, sometimes, though rarely, till ten, when it remains stationary till noon; it then descends, and is lowest at three, and continues stationary till eight; when it begins to rise, and continues till eleven, and is then at the same height that it was at nine in the morning.

On relating the above observations to the late Colonel *Pearce*, an indefatigable and rigidly accurate observer, and who had devoted much time and attention to Barometrical pursuits, he was surprised that such regular variations of the Mercury should have

escaped his observation: but some time after, with great candour acknowledged the certainty of the fact, and framed an hypothesis to account for it; which you will probably be able to obtain on an application to Captain *Grace*.

To me the phenomena appear inexplicable to any hypothesis that I can think of. The periods are evidently connected with the earth's diurnal motion; and, if he had not a satellite, might be easily explained by the atmospherical tides caused by the sun. But when we find that the Barometer is not, in the least observable degree, affected by the moon's passage over the meridian, or by the united action of the sun and moon at the syzygies, we have absolute proof that this cannot be the cause; neither can the expansion of the Mercury, being directly opposite to the phenomena, the greatest degree of heat taking place at three o'clock, when the Mercury is lowest.

With respect to the influence of the moon on the atmosphere, I was perfectly satisfied while in *Beerboom*, that the cold season set in at the syzygies only; and that there was always a considerable increase of cold at every return of them. But at the old powder-works near *Calcutta*, I observed the greatest degree of cold to happen sometimes at the quadratures. Being, however, at that time much engaged in other pursuits, I did not attend to the circumstance of the moon's *absolute distance*, though of the utmost consequence in all calculations of the heights of the tide, to which the variations of the state of the atmosphere, occasioned by the attraction of the sun and moon, must be analogous. And yet this fact, important as it is to every sea-faring person, especially in river-navigation, as well as to ship-builders, for predicting the highest spring-tides, seems to be totally unknown to the generality of these persons; nor is it surprising, as it is

not taken notice of in any treatiſe on navigation that I have met with. But M. *De la Lande* (Aſtronomy, vol. iii. p. 656) ſhews, that if the moon's mean force to raiſe the waters of the ocean be two and a half, her greateſt force when *apogee*, will be three; and her leaſt when *perigee*, two: a difference ſufficient to account for the tides at the quadratures being ſometimes nearly as high as thoſe at the ſyzygies: a circumſtance which was aſcertained by part of a committee inſtituted for examining plans; for new powder-works at the Old Fort Ghaut; where ſtakes had been driven, on purpoſe to find the riſe of the tide. M. *De la Lande* confirms the theory by many obſervations, made with great accuracy in ſome of the ports of France (Supplement, vol. iv.); and I can vouch for the fact by numerous meaſures of the heights of the tide, both at the old and new powder-works. But you may eaſily ſatisfy yourſelf of the fact, by obſerving the height of a few tides at Champaul Gaut, when you will find, invariably, that every great parallax of the moon, at the ſyzygies, is attended with a very high tide and ſtrong bore; and *vice verſa*. I have not been able to obſerve that the moon's declination, notwithſtanding what you may have heard from other quarters, has any perceptible effect on the tides.

I have been the more particular on this ſubject, as I have heard it made an unanſwerable objection to your ſyſtem, that the firſt attacks of intermittent fever do happen at the quadratures as well as the ſyzygies; and that relapſes do likewiſe happen at the quadratures. Now, ſhould you meet with any ſuch caſes, the above obſervations may perhaps tend to reconcile them to your ſyſtem, &c.

JOHN FARQUHAR.

Banky Bazar, 12*th Feb.* 1794.

III.

Although in this letter *Mr. Farquhar* deſcribes in the Barometer only *three* different diurnal periods of riſing and falling, I could not help ſuſpecting that there muſt likewiſe be a *fourth*, which had eſcaped his notice; and that I ſhould be able to diſcover a periodical falling alſo in the ſtate of the mercury, between eleven at night and ſix in the morning, analogous to that which he had obſerved between eleven at mid-day and ſix in the evening. Accordingly, by keeping myſelf awake, and continuing my obſervations during the night, I have now the ſatisfaction to be aſſured that my anticipation of the revolution I expected to diſcover, was perfectly juſt.

IV.

With a view of aſcertaining the progreſs of theſe *four* different revolutions by perſonal obſervation, I impoſed upon myſelf the taſk of obſerving and recording the changes of the Barometer, as far I was able, every half-hour, day and night, during the period of one complete lunation.

The reſult of this undertaking I have now the honour to lay before the Society; and if in matter or form it contains any thing worthy of their attention, or of a place amongſt their Reſearches, it will afford me a degree of ſatisfaction that will more than reward me for my labour.

I. OF THE PERIODICAL DIURNAL CHANGES

OF THE BAROMETER.

THE DETAIL OF FACTS.

V.

The Detail of Facts is comprehended in the following record of obſervations made on the Barometer, as regularly as I was able to perform it, every half-hour, both day and night, during the lunation which intervened between the 31ſt of *March* and the 29th of *April* 1794. To theſe I have added the ſtate of the *Thermometer* and *Wind*, with the *appearance* of the ſky.

VI.

My obſervations of the *Barometer* were taken with ſcrupulous exactneſs; and although the weighty hand of ſleep has more than once deprived me of obſervations that I was juſt about to make, and was anxious to record, I have never ventured to aſſume any probable ſtate of the Mercury as an actual obſervation.

VII.

With reſpect to the *Thermometer*, although it was liable to ſome inaccuracy, from my not being able to preſerve the apartment in which it was hung, uniformly open or ſhut, yet, as the variations from this cauſe were trifling, and never obſcured the regular and progreſſive riſe and fall which it obſerves at different periods of the day, I conceive that my record is ſufficiently exact for enabling me to decide, with ſafety, that the daily fluctuations which appeared in the Ba-

rometer, were *not* connected with the daily viciſſitudes of heat and cold.

VIII.

Although the ſtate of the *wind* was not meaſured by any inſtrument, but eſtimated only groſsly by the effect which it appeared to produce on the trees and other objects around, ſtill I conceive that I may alſo venture to determine on this ground, that the diurnal fluctuation of the Mercury was *not* connected with the ſtate of the wind.

In the column appropriated for recording the ſtate of the wind, *Number* 1 repreſents a breeze capable of carrying on a ſhip two or three miles in an hour; *Number* 2, a breeze capable of carrying on a ſhip four or five miles; and *Number* 3, a breeze capable of carrying on a ſhip ſix, ſeven, or eight miles.

IX.

Neither are the *appearances of the ſky* defined with much preciſion or minuteneſs; yet, upon the deſcription that I have given, I think I may pronounce with ſufficient confidence, that they did *not* direct or regulate the periodical diurnal fluctuation of the Barometer.

By conceiving the wind, which in the month of *April* is generally from ſome point in the ſouth, carrying conſtantly along with it, in the different degrees of velocity I have deſcribed (VIII.) different proportions of light and heavy clouds, we may obtain a tolerably juſt idea of the appearance of the ſky at *Calcutta* during that month.

To expreſs theſe different ſtates, we have employed in the record the terms *clear*, *cloudy*, and *overcaſt*.

When few clouds only appear, or none, which is ſeldom the caſe this ſeaſon, the ſky is ſaid to be *clear*; when the ſun or ſtars ſhine through a number of clouds, the ſky is ſaid to be *cloudy*; and when the ſun or ſtars do not appear at all, the ſky is ſaid to be *overcaſt*.

N. B. As the record of obſervations from which theſe negative propoſitions (VII. VIII. IX.) reſpecting the *thermometer*, *the ſtate of the wind*, and *appearance of the ſky* are inferred, is voluminous, and would neceſſarily exclude from this volume of the Reſearches matter that is much more intereſting, it has been conſidered ſufficient for the object of this paper, to inſert only the oppoſite abſtract, or *Synopſis*, of the obſervations made on the Barometer.

THE STATEMENT.

XI.

The ſum of my obſervations reſpecting the four Periodical Diurnal Revolutions of the Barometer which I have deſcribed, appears at one view in the preceding Synoptical Arrangement, and when ſtated preciſely in numbers, amounts to this:—

1*ſt*, That on every day of the thirty comprehended in the Record, excepting one (*a*), the Barometer conſtantly *fell* between ten at night and ſix in the morning; and that progreſſively, and without any intermediate riſing, excepting in one inſtance (*b*).

2*d*, That on every day of the thirty comprehended on the Record, without one exception,

(*a*) Between the 20th and 21ſt—*Vide* Synopſis.
(*b*) Between the 22d and 23d—ditto.

the Barometer constantly *rose* between six and ten in the morning; and that progressively, and without any intermediate falling, excepting in two instances (*c*) (*d*).

3*d*, That on every day of the thirty comprehended in the Record, without one exception, the Barometer constantly *fell* between ten in the morning and six in the evening; and that progressively, and without any intermediate rising in any instance.

4*th*, That on every day of the thirty comprehended in the Record, excepting two (*e*) (*f*), the Barometer constantly *rose* between six and ten in the evening; and that progressively, and without any intermediate falling in any instance.

THE INFERENCE.

XII.

From the preceding statement of the coincidences observed in these four portions of the day, it appears that we may reasonably infer the following propositions, limited to *Calcutta* in the month of *April* 1794.

1*st*, That, in the interval between ten at night and six in the morning, there existed a *prevailing tendency* in the Mercury to *fall*.

(*c*) On the 11th, - —*Vide* Synopsis.
(*d*) On the 23d, - —ditto.
(*e*) On the 15th, - —ditto.
(*f*) On the 20th, - —ditto.

2*d*, That, in the interval between ſix and ten in the morning, there exiſted a *prevailing tendency* in the Mercury to *riſe.*

3*d*, That, in the interval between ten in the morning and ſix in the evening, there exiſted a *prevailing tendency* in the Mercury to *fall.*

4*th*, That, in the interval between ſix and ten in the evening, there exiſted a *prevailing tendency* in the Mercury to *riſe.*

Theſe different prevailing tendencies to riſe and fall periodically at certain times of the day and night, neceſſarily imply a proportionate correſponding cauſe ſufficient to produce them. But here we ſtop, and venture to proceed no farther than to ſay, with Mr. *Farquhar*, that they ſeem to be connected with the diurnal revolutions of the planet which we inhabit.

XIII.

By an attentive examination of the Synopſis, it will appear that the general characters of the tendencies which prevail at the different periods we have deſcribed, are liable, within their reſpective limits, to ſeveral remarkable *variations*, viz.

1. With regard to *the time of beginning* to riſe or fall.
2. With regard to *the time of ceaſing* to riſe or fall.
3. With regard to *the ſteps or degrees* by which the Mercury riſes or falls.
4. With regard to the *limits or extremes* to which it riſes or falls.

Being under the neceſſity of acknowledging our ignorance of the cauſe which produces theſe *prevailing tendencies themſelves*, we can of courſe have no adequate idea or conception in theory of the different

circumſtances that are capable of producing the different *variations* which appear in their general character; and our obſervations being much too limited to eſtabliſh, concerning them, any thing like practical rules, we muſt remain contented for the preſent with pointing them out as queſtions which want inveſtigation; expreſſing however a ſtrong ſuſpicion that they are not unconnected with the relative poſitions of the Moon and the other planets.

THE APPLICATION.

XIV.

At the time of digeſting the ideas which I have delivered upon this ſubject, being poſſeſſed of no information but that which was communicated in Mr. *Farquhar*'s letter, and what I obtained afterwards from my own obſervations, I did not conceive that I was authorized to extend the propoſitions which I have advanced (XII.) reſpecting theſe tendencies, beyond the limits of *Calcutta*. By a note, however, which is juſt now pointed out to me in Dr. *Moſeley*'s very ingenious Treatiſe on Tropical Diſeaſes (*a*), I have the ſatisfaction to find that the very ſame tendencies have been obſerved to prevail

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(*a*) The Note referred to in Dr. *Moſeley*'s Treatiſe is this:— "It has been obſerved in theſe and more equatorial regions, that "though the Barometer is uſeleſs in indicating the variations of the "weather, it exhibits a phenomenon not correctly aſcertained in "temperate climates; which is, that the Mercury has two diurnal "motions of aſcent and deſcent, of nearly a line correſponding "with the courſe of the ſun; aſcending as the ſun approaches the "zenith and nadir, and deſcending as the ſun deviates from theſe "points. It remains ſtationary at its loweſt and higheſt degrees "for ſome hours."

on the opposite side of the globe. We may therefore now venture to allow them a more extensive range; and it will, no doubt, be considered of some importance to establish in certain latitudes (*b*) the existence of a law in nature by which the Mercury of the Barometer, let the standing weight and pressure of the atmosphere be what it may, is liable to the effects of a constant and regular periodical diurnal fluctuation; for it will then follow *that* the power of each succeeding hour to raise or sink it, is liable to differ from that which went before; *that* the height of the Mercury, therefore, taken only at two or three stated hours of the day, cannot with propriety be assumed to represent or form a just estimate of the whole twenty-four; *that* calculations proceeding hitherto on such partial grounds, must necessarily include error and require adjustment; and *that* in future, wherever this law extends, no correct philosophical investigation connected with the nature of the atmosphere, can be carried on without giving it a place (*c*); and no *just prognostic* formed of the weather

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(*b*) As far as I can judge from the following extract from Father *Cotte*'s Memoir on the prevailing winds, &c. &c. which I have just met with in the *Edinburgh Magazine* for *March* 1792, there seems to be great reason to believe that similar fluctuations take place in the Mercury, in the different latitudes of *Europe*; and that they are not entirely confined to the regions under the equator.

"The Mercury is generally a little lower about two o'clock in "the afternoon than at any other time of the day; and it is highest towards eight o'clock at night. I would compare this fact "without pretending to draw any consequences from it, with the "phenomenon of the magnetic needle, the greatest variation of "which from north towards west takes place about two or three "in the afternoon, and the least about eight o'clock in the morning-"—Vide the *Edinburgh Magazine* for *March* 1792, page 211, par. 6.

(*c*) A mean, extracted from means obtained from the extremes of these different diurnal fluctuations, will give the mean weight of the atmosphere much more correctly than the common process.

without diſtinguiſhing thoſe regular and conſtant changes from ſuch as are only occaſional and temporary.

With reſpect to Medicine, this law is a principle entirely new; and it has now become a matter of real conſequence, to aſcertain in what reſpects it cooperates with the power of the ſun and moon in producing and regulating the paroxyſms of fevers. From the ſtriking coincidence of *theſe tendencies* with the periods at which the paroxyſms of fevers generally attack and remit, and from their ſuperior prevalence in tropical climates where the paroxyſms of fever are alſo moſt prevalent, "*it ſeems to be highly probable that they may have a conſiderable ſhare in conſtituting that power which ſhews itſelf in ſo remarkable a manner in this country, and which we have denominated Sol-Lunar Influence.*"

II. OF THE PERIODICAL SEPTENARY CHANGES OF THE BAROMETER.

XV.

Reſpecting periodical ſeptenary changes in the ſtate of the Barometer, the only information I have been able to obtain, is extracted from an abridged Expoſition of the Syſtem of Mr. *Toaldo* upon the probability of the change of weather by the lunar points taken from the *Journal des Sciences Utiles*, and publiſhed in the *Calcutta Magazine* for *July* and *Auguſt* 1793. Mr. *Toaldo*, it appears, in order to aſcertain whether the moon had any influence on the

...ning.		Noon.			Evening.			Difference b... morn. & mid-...	Morning.				Noon.				Evening.				Temperature.	Weight.	Denſity.	Moiſture.	Rainy days.	Quant. of rain.	Number clear days.	Cloudy do.	Thunder No. o...
Higheſt.	Mean.	Loweſt.	Higheſt.	Mean.	Loweſt.	Higheſt.	Mean.		Loweſt.	Higheſt.	Mean.	Variation.	Loweſt.	Higheſt.	Mean.	Variation.	Loweſt.	Higheſt.	Mean.	Variation.									
[illegible]	72	70	86	79	68	76	73	7													74⅔		700	6	8	4.2	3	26	6
[illegible]	75	75	89	84	71	85	79	9													79⅓		692	5	3	1.8	16	15	3
[illegible]	83	87	97	91	79	87	85	8													86⅓		681	10	6	3.1	14	16	6
[illegible]	81	82	93	89	74	88	84	8													84⅔		683	15	12	9.6	7	24	13
[illegible]	81	80	90	85	78	86	83	4													83		686	25	14	17.4	1	29	5
[illegible]	81	77	90	85	78	85	83	4													83		686	25	20	15.	1	30	5
[illegible]	81	80	89	85	80	84	82	4	29.57	29.75	29.67	.18	29.56	29.75	29.66	.19	29.61	29.76	29.70	.15	82⅔	29.67	686	25	23	16.9	5	26	15
[illegible]	80	77	90	85	78	85	81½	5	.72	.95	.81	.23	.68	.90	.80	.22	.75	.97	.83	.22	82⅓	.81	690	24	12	11.3	10	20	5
[illegible]	79	77	90	86	76	85	82	7	.74	30.04	.92	.30	.77	30.00	.91	.23	.70	30.02	.92	.26	82⅔	.91	692	2	3	.8	19	12	1
[illegible]	71	76	86	81	71	80	75	10	.60	.12	30.00	.52	.88	.05	.99	.17	.92	.08	30.02	.16	76	30.00	702		1	.9	23	7	
[illegible]	63	68	79	74	65	73	68	11	30.02	.17	.09	.15	30.00	.14	30.07	.14	30.02	.17	.09	.15	68⅔	.08	718		1	0.5	26	5	
[illegible]	61	69	78	72	64	74	66½	11	29.98	.17	.08	.19	29.97	.14	·07	.17	.03	.17	.09	.14	66⅔	.08	722				29	2	
[illegible] 5/12	75 8/12	76 6/12	88	83	73 6/12	82 6/12	78 4/12	7 4/12	29.77	30.93	29.93	.20	29.81	30.00	29.92	.19	29.85	30.03	29.94	.18	79	29.92	695		105	81.0	154	212	59

ABSTRACT OF A METEOROLOGICAL REGISTER, KEPT AT CALCUTTA, 1785.

THERMOMETER.								Difference between morn. & mid-day heat.	BAROMETER.												Mean ſtate of the atmoſphere.			Moiſture.			Appearance atmoſphere.	
...ning.		Noon.			Evening.				Morning.				Noon.				Evening.											
Higheſt.	Mean.	Loweſt.	Higheſt.	Mean.	Loweſt.	Higheſt.	Mean.		Loweſt.	Higheſt.	Mean.	Utmoſt Variation.	Loweſt.	Higheſt.	Mean.	Variation.	Loweſt.	Higheſt.	Mean.	Variation.	Temperature.	Weight.	Denſity.	Moiſture.	Number of rainy days.	Quant. of rain.	Number clear days.	Cloudy do.
[illegible]	61	69	78	72	64	74	66	11	29.98	30.17	30.08	.19	29.97	30.14	30.07	.17	30.03	30.17	30.09	.14	66⅔	30.08	722				29	2
[illegible]	71	75	86	79	69	76	74	8½	.89	.14	.02	.25	.89	.17	.01	.28	29.96	.15	.04	.19	75	.02	706		4	2.9	17	11
[illegible]	75	80	90	85	73	83	78	10	.85	.12	29.95	.27	.84	.10	29.92	.26	.86	.13	29.97	.27	79	29.95	698		3	0.5	20	11
[illegible]	79	75	91	85	74	85	82	8	.70	29.97	.83	.27	.68	29.92	.81	.24	.74	29.97	.86	.23	82½	.83	690		6	8.0	17	13
[illegible]	83	87	94	90	80	89	85	7	.60	.96	.77	.36	.53	.92	.74	.39	.63	30.03	.82	.30	86	.77	682		10	6.0	18	13
[illegible]	81	80	90	84	79	85	82	3	.44	.70	.59	26	.40	.68	.56	.28	.47	29.72	.61	.26	83	.58	684		24	24.4	4	26
[illegible]	81	80	89	84	80	87	82	3	.44	.73	.59	.29	.45	.67	.56	.22	.47	.73	.62	.26	83	.59	684		24	12.8	4	27
[illegible]	81	80	89	84	80	86	82	3	.50	.78	.62	.28	.49	.72	.59	.23	.57	.78	.64	.26	83	.62	685		20	9.3	3	28
[illegible]	81	81	89	85	80	85	82	4	.62	.83	.71	.21	.59	.82	.68	[illegible]	.66	.87	.75	[illegible]	[illegible]	.71	686		16	[illegible]	[illegible]	[illegible]

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL.

ON THE DUTIES OF *A FAITHFUL HINDU WIDOW.*

BY HENRY COLEBROOKE, ESQ.

WHILE the light which the labours of the *Asiatic Society* have thrown on the ſciences and religion of the *Hindus*, has drawn the attention of the literary world to that ſubject, the hint thrown out by the Preſident for rejecting the authority of every publication preceding the tranſlation of the *Gitá*, does not appear to have made ſufficient impreſſion. Several late compilations in *Europe* betray great want of judgment in the ſelection of authorities; and their motley dreſs of true and falſe colours tends to perpetuate error; for this reaſon it ſeems neceſſary on every topic, to revert to original authorities for the purpoſe of calling error or verifying facts already publiſhed; and this object will no way be more readily attained than by the communication of detached eſſays on each topic, as it may preſent itſelf to the Orientaliſt in the progreſs of his reſearches.

From this or any other motive for indulgence, ſhould the following authorities from *Sanſcrit* books be thought worthy of a place in the next volume of the Society's Tranſactions, I ſhall be rewarded for the pains taken in collecting them.

"Having first bathed, the widow, dressed in two "clean garments, and holding some *cúsa* grass, sips "water from the palm of her hand. Bearing *cúsa* "and *tila (a)* on her hand, she looks towards the "east or north while the *Bráhmana* utters the mystic "word *Om*. Bowing to *Nerayana*, she next declares "*(b)* "On this month, so named in such a *Pacsha*, "on such a *tit'hi*, I (naming herself and her *(c)* "family) that I may meet *Arundhatí (d)* and re- "side in *Swarga*; that the years of my stay may be "numerous as the hairs on the human body; that I "may enjoy with my husband the felicity of hea- "ven, and sanctify my paternal and maternal pro- "genitors, and the ancestry of my husband's fa- "ther; that lauded by the *Apsarases*, I may be hap- "py with my lord, through the reigns of fourteen "*Indras*; that expiation be made for my husband's "offences, whether he has killed a *Bráhmana*, "broken the ties of gratitude, or murdered his friend, "thus I ascend my husband's burning pile. I call "on you, ye guardians of the eight regions of the "world! Sun and Moon! Air, Fire, Æther *(e)*, "Earth, and Water! My own soul! *Yama!* Day, "Night, and Twilight! And thou, Conscience, bear

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(a) *Sesamum.*

(b) This declaration is called the *Sancalpa*.

(c) *Gótra*, the family or race. Four great families of *Bráhmanas* are now extant, and have branched into many distinct races. Since the memorable massacre of the *Cshatriyas*, by *Parasu Ráma*, the *Cshatriyas* describe themselves from the same *Gótras* as the *Bráhmanas*.

(d) Wife of *Vasisht'ha*.

(e) *Acása*.

"witneſs: I follow my huſband's corpſe on the fu-
"neral pile (*f*)."

Having repeated the *Sancalpa*, ſhe walks thrice round the pile; and the *Bráhmana* utters the following *Mantras*:

"Om! Let theſe women, not to be widowed, "good wives, adorned with collyrium, holding clarified butter, conſign themſelves to the fire. Immortal, not childleſs, nor huſbandleſs, excellent, "let them paſs into fire, whoſe original element is "water.

From the *Rigvéda*.

"Om! Let theſe wives, pure, beautiful, commit "themſelves to the fire, with their huſband's corpſe."

A Paurânica Muntra.

With this benediction, and uttering the myſtic *Namó Namah*, ſhe aſcends the flaming pile.

While the preſcribed ceremonies are performed by the widow, the ſon, or other near kinſman, of the deceaſed, applies the firſt torch, with the forms

(*f*) In ſeveral publications the woman has been deſcribed as placing herſelf on the pile before it be lighted; but the ritual quoted is conformable to the text of the *Bhâgavata.*

"When the corpſe is about to be conſumed in the *Sabôtaja**, the faithful wife who ſtood without, ruſhes on the fire."

Náreda to Yudiſht'hira.

* Cabin of graſs or leaves, ſometimes erected on the funeral pile. "The ſhed on the funeral pile of a *Muní* is called *Parn'ótaja* and *Sabôtaja*." See the vocabulary entiled *Hárábalí.*

directed for funeral rites in the *Grìhya (g)*; by which his tribe is governed.

The *Sancalpa* is evidently formed on the words of *Angiras*:

" The wife who commits herself to the flames with her husband's corpse, shall equal *Arundhatí*, and reside in *Swarga*;

" Accompanying her husband, she shall reside so " long in *Swarga* as are the thirty-five millions of " hairs on the human body.

" As the snake-catcher forcibly drags the serpent " from his earth, so, bearing her husband from " hell, with him she shall enjoy heavenly bliss.

" Dying with her husband, she sanctifies her ma- " ternal and paternal ancestors; and the ancestry of " him to whom she gave her virginity.

" Such a wife, adoring her husband, is celestial " felicity with him, greatest, most admired *(h)*; " with him she shall enjoy the delights of heaven " while fourteen *Indras* reign.

(g) Extracts or compilations from the sacred books, containing the particular forms for religious ceremonies, to be observed by the race or family for whom that portion of the sacred writings has been adopted, which composes their *Grìhya*. We learn from the *Bhágavata*, that *Vyása* divided the *Véda* into four (*Rich*, *Yajush*, *Sáman*, and *At'harvan*) or five, including the *Itihàsas* or other *Puranas* as one *Véda*. *Paila* accepted the *Rignéda*; *Jaimeni* and *Cavi*, or *Sucra*, the *Sámavéda*; *Baisampayana* learned the *Rajurvéda*; *Samuntu*, *Daruna*, aad others of the family of *Angiras*, the *At'harvavéda*. " My father (*Suc'ha*, son of *Vyása* speaks) " selected the *Itihàsas* and *Purânas*; then the several *Rishis* chose " the *Védas* variously (parts of each). Their pupils, the suc- " cessors of their pupils, and the pupils of these, became fol- " lowers of particular *Sác'has*."

(h) The word in the text is expounded " lauded by the choir of heaven, *Gandharvas*," &c.

"Though her husband had killed a *Bráhmana,*
"(*i*) broken the ties of gratitude, or murdered his
"friend, she expiates the crime." *Anigras.*

The *Mantras* are adopted on the authority of the *Brahme Purana.*

"While the pile is preparing, tell the faithful
"wife of the greatest duty of woman; *she is loyal and*
"*pure who burns herself with her husband's corpse.*
"Hearing this, fortified in her resolution, and full
"of affection, she completes the *Pitrímheda Yaga*
"(*k*) and ascends to *Swarga.*"

Brahme Purana.

It is held to be the duty of a widow to burn herself with her husband's corpse; but she has the alternative,

"On the death of her husband, to live as *Brah-*
"*machàrì*, or commit herself to the flames."

Vishnu.

The austerity intended consists in chastity, and in acts of piety and mortification.

"The use of *Tambúli*, dress, and feeding off ves-
"sels of tutenague is forbidden to the *Yati* (*l*), the
"*Brahmachàrì*, and the *widow.*

Prachétas.

(*i*) The commentators are at the pains of shewing that this expiation must refer to a crime committed in a former existence; for funeral rites are refused to the murderer of a *Brahmana.*

(*k*) Act of burning herself with her husband.

(*l*) *Sannyasì.*

"The widow ſhall never exceed one meal a day, "nor ſleep on a bed: if ſhe does ſo, her huſband falls "from *Swarga*.

"She ſhall eat no other than ſimple food, and "(*m*) ſhall daily offer the *tarpana* of *cúſa*, *tila*, and "water (*n*).

"In *Vaisác'ha*, *Cártica*, and *Mágha*, ſhe ſhall ex-"ceed the uſual duties of ablution, alms, and pilgri-"mage, and often uſe the name of *God* in prayer."

The *Smriti*.

After undertaking the duty of a *Satí*, ſhould the widow recede, ſhe incurs the penalties of defilement.

"If the woman, regretting life, recede from the "pile, ſhe is defiled; but may be purified by ob-"ſerving the faſt called *Prájápatya*." (*o*)

Apaſtamba.

Though an alternative be allowed, the *Hindu* legiſlators have ſhown themſelves diſpoſed to encourage widows to burn themſelves with their huſband's corpſe.

Hárita thus defines a loyal wife: "She, whoſe "ſympathy feels the pains and joys of her huſband;

(*m*) If ſhe has no male deſcendants. See *Madana Paríjáta*.

(*n*) Oblations for the manes of anceſtors to the third degree, though not excluſively; for the prayer includes a general petition for remoter anceſtors. Yet daily oblations (*Vaiſvádéva*) are ſeparately offered for anceſtors beyond the third degree.

(*o*) It extends to twelve days; the firſt three, a ſpare meal may be taken once in each day; the next three, one in each night; the ſucceeding three days, nothing may be eaten but what is given unſolicited; and the laſt three days are a rigid faſt.

"who mourns and pines in his abſence, and dies "when he dies, is a good and loyal wife.

Hárita.

"Always revere a loyal wife, as you venerate "the *Dévatás*; for, by her virtues, the prince's em- "pire may extend over the three worlds."

Matſya Puràna.

"Though the huſband died unhappy by the diſ- "obedience of his wife; if from motives of love, "diſguſt of the world, fear of living unprotected, "or ſorrow, ſhe commit herſelf to the flames, ſhe "is entitled to veneration."

Mahá Bhárata.

Obſequies for ſuicides are forbidden; but the *Rigvèda* expreſsly declares, "that the loyal wife who "burns herſelf, ſhall not be deemed a ſuicide. When "a mourning of three days has been completed, the "*Sráddha* is to be performed*. This appears from "the prayer for the occaſion, directed in the *Rig*- "*vèda*."

Regularly the chief mourner for the huſband and for the wife, would in many caſes, be diſtinct perſons: but the *Bhaviſhya Puràna* provides, *that* "When the widow conſigns herſelf to the ſame "pile with the corpſe of the deceaſed, whoever per- forms the *Criyá* for her huſband, ſhall perform it for her."

"As to the ceremonies from the lighting of the "funeral pile to the *Pinda*; whoever lights the pile "ſhall alſo offer the *Pinda*."

Váyu Purána.

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* The ſhortneſs of the mourning is honourable: the longeſt mourning is for the loweſt tribe.

In certain circumſtances the widow is diſqualified for this act of a *Sati*.

" She who has an infant child, or is pregnant, or
" whoſe pregnancy is doubtful, or who is unclean,
" may not, O princeſs, aſcend the funeral pile.

" So ſaid *Náreda* to the mother of *Sagara*."

" The mother of an infant ſhall not relinquiſh the
" care of her child to aſcend the pile; nor ſhall one
" who is unclean (from a periodical cauſe) or whoſe
" time for purification after child-birth is not paſſed;
" nor ſhall one who is pregnant, commit herſelf to the
" flames (*q*). But the mother of an infant may, if
" the care of the child can be otherwiſe provided."

Vrihaſpati.

In the event of a *Bràhmana* dying in a diſtant country, his widow is not permitted to burn herſelf.

" A *Viprà* or *Bràhmana* may not aſcend a ſecond
" pile." *Gótama.*

But with other caſts, this proof of fidelity is not precluded by the remote deceaſe of the huſband; and is called *Anugamana*.

" The widow, on the news of her huſband's dying
" in a diſtant country, ſhould expeditiouſly burn
" herſelf: ſo ſhall ſhe obtain perfection." *Vyáſa.*

(*q*) It has been erroneouſly aſſerted, that a wife, pregnant at the time of her huſband's death, may burn herſelf after delivery. *Hindu* authorities poſitively contradict it. In addition to the text it may be remarked, that it is a maxim, " What was prevented in " its ſeaſon, may not afterwards be reſumed."

"Should the husband die on a journey, holding "his *sandals* to her breast, let her pass into the flames."

Brahme Purána.

The expression is not understood of *sandals* exclusively: for thus *Usanas* or *Sucra.*

"Except a *Viprà*, the widow may take any thing "that belonged to her husband, and ascend the pile.

"But a *Viprà* may not ascend a second pile; this "practice belongs to other tribes." *Sucra.*

In two of the excepted cases, a latitude is allowed for a widow desirous of offering this token of loyalty, by postponing the obsequies of the deceased: for *Vyása* directs that, "If the loyal wife be distant "less than the journey of a day, and desire to die "with her husband, his corpse shall not be burnt "until she arrive. And the *Bhavishya Puràna* per"mits that the corpse be kept one night, if the third "day of her uncleanness had expired when her hus"band died."

With respect to a circumstance of time (*r*), which might on some occasions be objected, the commentators obviate the difficulty, by arguing from several texts, "that to die with or after her husband, is for "a widow *Naimittica* (*s*) and *Cámya* (*t*), and conse"quently allowable in the intercalary month;" for *Dacsha* teaches, that "whenever an act both *Nai*"*mittica* and *Cámya* is in hand, it is then to be "performed without consulting season." They are at the trouble of removing another difficulty:

(*r*) Occasional observances are omitted on intercalary days.
(*s*) Eventual; incumbent when a certain event happens.
(*t*) Optional; done for its reward.

"*Dhritaráshtra*, in the state of *Samadhi*, quitted "his terrestrial form to proceed to the *Mucti*, or "*beatitude*, which awaited him. When the leaves "and wood were lighted to consume the corpse, "his wife *Gándhári* was seen to pass into the flames. "Now also, a husband dying at *Cásì* and attain"ing *Mucti*, it becomes his widow to follow the "corpse in the flames."

It were superfluous to pursue commentators through all their frivolous distinctions and laborious illustrations on latent difficulties.

All the ceremonies essential to this awful rite are included in the instructions already quoted. But many practices have been introduced, though not sanctioned by any ritual. A widow who declares her resolution of burning herself with the corpse, is required to give a token of her fortitude: and it is acknowledged, that one who receded after the ceremony commenced, would be compelled by her relations to complete the sacrifice. This may explain circumstances described by some who have witnessed the melancholy scene.

Other ceremonies noticed in the relations of persons who have been present on such occasions, are directed in several rituals:

"Adorned with all jewels, decked with *minium* "and other customary ornaments, with the box of "*minium* in her hand, having made *pújá*, or adoration "to the *Dévátás*, thus reflecting that *this life is* "*nought: my lord and master to me was all*,—she "walks round the burning pile; she bestows jewels "on the *Brahmanas*, comforts her relations, and "shows her friends the attentions of civility; while "calling the Sun and elements to witness, she dis-

"tributes *minium* at pleaſure; and having repeated "the *Sancalpa*, proceeds into the flames: there em- "bracing the corpſe, ſhe abandons herſelf to the fire, "calling *Satya! Satya! Satya!*"

The by-ſtanders throw on butter and wood: for this, they are taught, that they acquire merit exceeding ten millions fold, the merit of an *Aſwamèdha*, or other great ſacrifice. Even thoſe who join the proceſſion from the houſe of the deceaſed to the funeral pile, for every ſtep are rewarded as for an *Aſwamèdha*. Such *indulgences* are promiſed by grave authors: they are quoted in this place only as they ſeem to authorize an inference, that happily the martyrs of this ſuperſtition have never been numerous. It is certain that the inſtances of the widow's ſacrifices are now rare: on this it is only neceſſary to appeal to the recollection of every perſon reſiding in *India*, how few inſtances have actually occurred within his knowledge. And, had they ever been frequent, ſuperſtition would hardly have promiſed its indulgences to ſpectators.

ON THE TRACES

OF THE

HINDU LANGUAGE AND LITERATURE

Extant amongſt the Malays.

BY WILLIAM MARSDEN, ESQ.

THE *Sanſcrit*, or ancient language of the *Hindus*, is a ſubject ſo intereſting in itſelf, that every diſcovery which contributes to throw light upon its hiſtory or to mark its extent, carries with it a degree of importance. The proofs of its influence in the northern countries of *Aſſam*, *Nepal*, *Booten*, and *Tibet*, as well as in the ſouthern parts of the peninſula of *India*, are to be found in the works of the Miſſionaries and the Reſearches of this Society; but the progreſs it made in early times, amongſt the inhabitants of the eaſtern iſlands and countries poſſeſſed by the *Malays*, has not, I believe been pointed out by any writer. My acquaintance with the language of the latter people, together with ſome attention paid to the dialects of *India* in general, have enabled me to obſerve, that the *Malayan* is indebted to the *Sanſcrit* for a conſiderable number of its terms. I have alſo ſatisfied myſelf, that the intercourſe by which this communication was effected, muſt have taken place in times anterior, probably by many centuries,

to the converſion of theſe people to the *Mahometan* religion. The language, it is true, abounds at preſent with *Arabic* words, which their writers affect to introduce, becauſe this diſplay of literary ſkill is, at the ſame time a proof of their religious knowledge; but they are generally legal or metaphyſical terms, borrowed from the *Koran* and its commentaries; are never expreſſive of ſimple ideas, have not been incorporated into the language (a few excepted) and are rarely made uſe of in converſation. The *Hindu* words, on the contrary, are ſuch as the progreſs of civilization muſt ſoon have rendered neceſſary, being frequently expreſſive of the feelings of the mind, or denoting thoſe ordinary modes of thought which reſult from the ſocial habits of mankind, or from the evils that tend to interrupt them. It is not however to be underſtood, that the affinity between theſe languages is radical, or that the names for the common objects of ſenſe are borrowed from the *Sanſcrit*. The *Malayan* is a branch or dialect of the widely extended language prevailing throughout the iſlands of the *Archipelago*, to which it gives name (*), and thoſe of the *South Sea*; comprehending between *Madagaſcar* on the one ſide, and *Eaſter Iſland* on the other, both incluſive, the ſpace of full two hundred degrees of longitude. This conſideration alone is ſufficient to give it claim to the higheſt degree of antiquity, and to originality, as far as that term can be applied. The various dialects of this ſpeech, though they have a wonderful accordance in many eſſential properties, have experienced thoſe changes which ſeparation, time, and accident produce; and in reſpect to the purpoſes of intercourſe, may be claſſed into ſeveral languages, differing conſider-

* The *Malay-Archipelago* may be underſtood to comprehend the *Sunda*, *Phillippine*, and *Molucca* iſlands, in the maritime parts of which, the *Malayan* is uſed as a *lingua franca*.

ably from each other. The marks of cultivation by which the *Malayan* is diſtinguiſhed from his ruder neighbours, are to be attributed, in my opinion, to the effects of an early connexion that muſt have ſubſiſted between the inhabitants of this eaſtern peninſula and thoſe of the continent of *India*; but what the nature and circumſtance of this connexion may have been, it is not eaſy to determine. A ſpirit of foreign conqueſt, and ſtill more, a zeal for the propagation of their religious tenets, appear incompatible with the genius of the *Hindu* ſyſtem, excepting amongſt the diſciples of *Bhood*; but I have never diſcovered in the *Malayan* cuſtoms or opinions any traces of the peculiar inſtitutions of that extraordinary ſect.

A commercial intercourſe has always ſubſiſted between the manufacturing countries of *India* and the marts for the produce of the *Spice-iſlands*, ſuch as *Johor*, *Sinapoora*, and *Malacca*; and when the *Portugueſe*, at the commencement of the ſixteenth century, firſt viſited theſe places, they mention with ſurprize the concourſe of foreign veſſels aſſembled there. But independently of other objections that might be raiſed to the probability of theſe traders having poliſhed the language of the people whoſe ports they frequented, or having imparted to them their national literature, it is to be obſerved that by much the greater proportion of the ſhips belonging to native merchants, which now enter the ſtraits of *Malacca*, come from the coaſt of *Coromandel*, and conſequently are navigated by perſons who ſpeak the languages prevailing in that part; whereas it is evident, that, from the *Telinga*, or the *Tamool*, the *Malayan* has not received any portion of its improvement, but from the genuine *Hinduvee* of the northern provinces, prior to its debaſement by the mixture of *Arabic* nouns, and the abuſe of verbal auxiliaries. If

the communication muſt neceſſarily be ſuppoſed to have its origin in commerce, I ſhould be inclined to conſider the people of *Guzerat*, notwithſtanding their diſtance, as the inſtructors of the *Malays*. Their reſort to *Malacca* is particularly noticed by *De Barras*, and other authentic writers; and it is well known that the *Hindu* language has been preſerved with more purity in that, than in any other maritime province of *India*.

The nature of the affinity ſuggeſted, will ſufficiently appear to thoſe who are converſant with the *Hindu* dialects, by the following examples of *Sanſcrit* words, which are at the ſame time ſo familiar to the *Malays*, and ſo thoroughly incorporated into their vernacular tongue, that their foreign origin is never ſuſpected, although the terms adopted from the *Arabs* can, with very few exceptions, be immediately pointed out by the moſt ordinary ſcholar. It is true that he is aſſiſted in this diſcrimination by the peculiarities of the *Arabic* orthography; for the *Malays*, as well as the *Perſians* and other people, who, in conſequence of their converſion to the faith of the *Koran*, employ this alphabet in their writings, do yet reject the uſe of certain letters, either as ſuperfluous, or as not ſuited to the ſmoothneſs of their own ſounds, and which therefore appear only in words purely *Arabic*. The *Hinduvee* words, on the contrary, being diveſted of their proper dreſs, and clothed, in common with thoſe originally *Malayan*, in the adopted *Arabic* character (with certain judicious modifications) want the ſame token of their origin, and are more aſſimilated with the reſt of the language.

In this ſhort liſt of words, taken, with little pains in the ſelection, from a *Malayan* dictionary, the departure from the *Hinduvee* is ſcarcely more than may ariſe from a different habit of ſpelling them in our

letters, unleſs where it conſiſts in a ſlight variation of the ſenſe, or of the part of ſpeech.

Sooka. Fond, pleaſed.
Sooka chetha. Pleaſure, joy.
Dooka. Sad.
Bagee. To divide.
Bangſa. Race, family.
Baja. Language.
Bechara. Advice, counſel, judicial proceeding.
Beejee. Seed.
Boodee. Wiſdom, underſtanding.
Loba. Covetous.
Jaga. To watch.
Pootree. Princeſs.
Rata. Chariot.
Pernama. Full moon.
Charee. To ſeek.

An inſpection of the characters uſed by the natives of the iſlands, who have not adopted the *Malayan* or *Arabic* mode of writing, will ſhew that in the arrangement of their letters they have taken the *Hindu* for their guide, and have even preſerved the rhythmus terminated by a *naſal*; which ſo peculiarly diſtinguiſhes this from every other ſyſtem. The aſpirated letters not being required for expreſſing the ſounds of theſe languages, are omitted, and each diviſion of the ſeries conſiſts therefore of three, inſtead of five. In the *Rejang* alphabet the order is as follows: *Ka, ga, nga*; *Ta, da, na*; *Pa, ba, ma*; *Cha, ja, nia*, &c. (ſee *Hiſtory of Sumatra*, plate.) In the *Sanſcrit*, I need ſcarcely to obſerve, the ſeries of conſonants begins thus: *Ka, k'ha, ga, g'ha, nga*; *Cha, ch'ha, ja, j'ha, gnya*; *Ta, t'ha, da, d'ha, na*, &c. If other proofs were wanting of the influence of *Hindu* intercourſe in theſe parts, ſuch conformity alone, in a matter ſo arbitrary, and which exiſts equally in other obſcure dialects, and extends even to the iſland of *Celebes*, would be ſufficient to eſtabliſh it. The languages of theſe iſlanders have not, however, been enriched by an acceſſion of *Hindu* words in any degree proportioned to the *Malayan*, which uſes the *Arabic* alphabet; but the probability is ſtrong, that the inhabitants of the *Malay* peninſula were in poſſeſſion of an alphabet on the ſame model, and were even ſkilled in compoſition, before the *Mahometans* introduced their learning and character among them.

But the circumſtance which has more immediately ſtruck my attention, and given occaſion to theſe remarks, is that of my having met with frequent alluſion in their writings to the moſt celebrated works of the *Hindu* mythological poets, eſpecially the *Mahabharat* and the *Ramayan*. A manuſcript now lying before me, which is a ſpecies of romance, exhibits in almoſt every page the marks of the author's acquaintance with *Hindu* literature and manners. It contains the adventures of two princes, who were ſent by the king their father, to obtain for him the poſſeſſion of an extraordinary ſelf-performing inſtrument of muſic, whoſe enchanting air he had heard in a dream. However flimſy this foundation, and incoherent the parts of its ſuperſtructure, it gives ſcope to the diſplay of a lively and fertile imagination, much delicate imagery, and pathetic expreſſion of ſentiment. The following paſſages allude, unequivocally, to well-known perſonages in the *Pooranas*:—*Terlaloo baeck ſegala roopa'nia maha indah ſepartee pandooa leema*; "ſurpaſſing good was their "whole appearance; moſt admirable, like unto the "five *Pandoos*." Again: *Lakoo'nia meng amok eeto ſepartee pandooa leema tatkala eea meng-amok dedalam rayet kooraoo*; "the manner in which they "fought was like that of the five *Pandoos* when they "ruſhed into the ranks of the *Kooroos*." Theſe can be no other than the renowned favourites of *Kriſhna*, whoſe brilliant actions and perſonal accompliſhments are the theme of immortal ſong. The machinery of the *Ramayan* is interwoven with the ſtory; and this circumſtance tends to increaſe my regret that we poſſeſs no tranſlation, even in abſtract, of that much-admired poem. The *Malayan* princes are, like *Rama*, attended in their wars by apes of extraordinary endowments, who fight with more than human proweſs, and overcome the *Rakſaſa*, or hobgoblins, who ſerve under the banners of the

adverſary. One of the former, whoſe talents as an ambaſſador are the ſubject of panegyric, is ſaid to reſemble that diplomatic monkey who was ſent by *Sree Rama* to the King of *Langkapooree.* The mixture of qualities and actions gravely attributed to them in their double capacity of monkies and heroes, produces a very ludicrous and amuſing effect. Though their ideas are rational, their manners and propenſities are faithful to nature. Mention is alſo made of *Biſno dewa*; of the mountain *Maha meroo*; of the blue lotos growing in the pool *Mandoo ratna*; of a lion poſſeſſing ſupernatural powers, *Sing-aſaktee*, and elſewhere *Sing-a-rajoon*, who ſhot arrows at *Maharaja Karna.* Some of theſe latter names I do not recollect to have met with in the notices we have of the *Hindu* mythology.

Theſe ſimilies and alluſions muſt refer, as in all poetry, to ſtories with which the readers were preſumed to be well acquainted, and ſeem to imply, that tranſlations of the works were formerly in the hands of the *Malays.* I do not know that ſuch remain amongſt them at this day: but my ignorance is no proof of the contrary; for at the time when I had opportunities of making the enquiry, I was uninformed as to the exiſtence of the originals, and the paſſages above quoted were of courſe unintelligible to me. They muſt be ſought for in the peninſula of *Malacca*, or amongſt the *Menangkabon* people in *Sumatra.* A ſpirit of inveſtigation is now gone forth, and under the influence of the *Aſiatic Society*; and from the example of its Preſident, we may confidently hope that no region of oriental literature will be left unexplored.

Since the foregoing Paper was written, and communicated to a few friends, I have ſeen a copy of the third volume of the *Aſiatic Reſearches* (juſt

received from Calcutta) and obſerve that the connexion between the *Malayan* and the *Sanſcrit* has not eſcaped the notice of the Preſident, whoſe learned and elegant *Anniverſary Diſcourſe* points it out (p. 11 and 12) in a clear and decided manner. The ſanction of his authority to my opinion fully reconciles me to the anticipation of a ſuppoſed diſcovery.

A CATALOGUE

OF

INDIAN PLANTS,

COMPREHENDING THEIR SANSCRIT,

AND

AS MANY OF THEIR LINNÆAN GENERIC NAMES AS COULD WITH ANY DEGREE OF PRECISION BE ASCERTAINED.

BY THE LATE PRESIDENT.

'ACA'SABALLI', *Cassyta.*
Achyuta, *Morinda.*
'Acránti, *Solanum.*
Acsha.
5 Agastya, *Æschynomene.*
Agnis'ic'há.
Aguru, *Cordia.*
Alábu, *Cucurbita.*
Alamvusha, *Bryonia.*
10 Alarca, *Asclepias.*
Alpamárisha.
Amalá.
'Amalacì, *Phyllanthus.*
Ambasht'ha.
15 Amlána, *Gomphrena.*
Amlalónica, *Oxalis.*
Amlavétasa, *Hypericum.*
Amlicá, *Tomarindus.*
Amra, *Mangifera.*
20 Amrátaca, *Spondias.*
Ancót'a.
Ans'umátì.
An'u, *Oryza.*
Apámarga.
25 Aparájitá, *Clitoria.*
Arca, *Asclepias.*
'Ardraca, *Amomum.*
Ariméda.
Arishtâ, *Xanthium.*
30 Arjaca, *Ocymum.*
Arjuna, *Lagerstroemiu?*
Arushcara, *Semecarpus.*
As'mantaca.
As'óca, a new genus.
35 'Asp'hóta, *Nyctanthes.*
'Aus'vríhi, *Oryza.*
Atavishá.
Aticharà,
Atimuctá, *Banisteria.*
40 'Avigna, *Carissa?*
Bacula, *Mimusops.*
Badarì, *Rhamus.*
Bahuváraca.
Bahvanga, a new genus.
45 Balá.
Bála.
Bandhúca, *Ixora.*
Banga, *Cannabis.*

Báta, *Ficus*.
50 Bhadramustaca, *Cyperus*.
Bhanga, *Gossypium*.
Bhanti, *Clerodendrum*.
Bhavya, *Dillenia*.
Bharadwájì.
55 Bhúchampaca, *Kœmferia*,
Bhújambúca.
Bhúlavanga, *Jussiena*.
Bhurandí, *Ipomœa*?
Bhúrja.
60 Bhústrina, *Andropogan*?
Bhútavésì, *Nyctanthes*.
Berberá.
Bimba, *Bryonia*?
Bimbicá, the same?
65 Bráhmani, *Ovieda*.
Brahmasuverchalá.
Bráhmì, *Ruta*.
Bilva, *Cratœva*.
Biranga.
70 Cácamáchi.
Cácángì, *Aponogeton*?
Cachu, *Arum*.
Cadalì, *Musa*.
Cadamba, *Nauclea*.
75 Cahlára, *Nymphœa*.
Cálá.
Cálá.
Calambí.
Calamì.
80 Caláya Cálinga, *Cucurbita*.
Calpaca.
Cámalatá, *Ipomœa*.
Cámpilla, a new genus.
Canchanára, *Bauhinia*.
85 Canda, *Dracontium*.
Candarála.
Candúra, *Dolichos*.
Candúru, *Scilla*?
Cangu.
90 Cantála, *Agave*?
Capilá.
Capitt'ha, *Limonia*.
Caranjáca, a new genus.
95 Caravélla, *Cleome*?
Cáravì, *Laurus*.
Caravíra, *Nerium*.
Carmaranga, *Averrhoa*.
Carnicára, *Pavetta*.
100 Carparála, *Aloë*?
Carpásì, *Gossypium*.
Carpúra, *Laurus*.
Caruna, *Citrus*.
Cása, Saccharum.
5 *Cáshmìrá*.
C'atáca, *Strychnos*.
Cátp'hala, *Tabernœmontana*.
Catu.
Cémuca.
10 Celara, *Crocus*.
Cétaca, *Pandamus*.
Chacralá.
C'hadira, *Mimosa*.
Ch'hatráca, *Agaricus*.
15 Campaca, *Michelia*.
Chanaca.
Chandà.
Chandana, *Santalum*.
Chandricá,
20 C'harjúra, *Phœnix*.
Carmacashá.
Chavaca,
Chitra.
Chitraca, *Plumbago*.
25 Chórapushpì, *Scirpus*.
Ciráta.
Códrava.
Córangi.
Cóvidára, *Bauhinia*.
30 Clítaca.
Cramuca.
Críshná,
Críshnachúrá, *Poinciana*.
Cshíraví *Asclepias*?
35 Cshumá, *Linum*.
Culaca, *Strychnos*.
Culmásha,
Cumbha.
Cumbhicá, *Pistia*.
40 Cumuda, *Menianthes*.
(Cuncuma, *Crocus*)?
Cunda, *Jasminum*.
Carubaca, *Barleria*.
Curuntaca.
45 Curuvaca.
Cus'a, *Poa*.
Cushmánda, *Cucumis*?

Cusumbha, *Carthamus*.
Cutaja, *Jasminum*.
50 Cuvalaya.
Cuveraca, *Swietenia*.
Dámápana.
Danticá.
Dhanyáca.
55 Dárima, *Punica*.
Dásì.
Dévadaru, *Unona*.
Dhátacì.
Dhustúra, *Datura*.
60 Dóná, *Artemisia*.
Drácshá, *Vitis*.
Durgájátá, *Ophioglosum*.
Dúrvá, *Agrostis*.
Dwipatri, *Impatiens*.
65 'Ela, *Amomum*.
'Elabáluca.
Eranda, *Ricinus*.
Gajapippali, a new genus.
Gambhárì.
70 Gandálí.
Gandharája, *Gardenia*.
Gandíra, *Solanum* ?
Gaurichandra, *Hedysarum*.
Ghantapátah.
75 Ghóntá, *Rhamnus*.
Ghóshacá.
Gránt'hila.
Grínjana, *Daucus*.
Gócantaca, *Barleria*.
80 Gódhápad'i.
Gódhúma, *Triticum*.
Gojihvá, *Elephantopus*.
Gólómí, *Agrostis* ?
Gónarda, *Cyperus* ?
85 Góræshá.
Govácshí.
Góvará, *Eranthemum*.
Guggulu.
Guha.
90 Gunjá, *Abrus*.
Guváca, *Areca*.
Haimavatî.
Halaca, *Nymphœa*.
Hanu.
95 Haricus'a, *Acanthus*.
Hardrái, *Curcuma*.
Harédru.
Haritací, *Terminalia*.
Haritála.
200 Haryanga, *Cissus*.
Hémapushpicá, *Jasminum*.
Hémaságara, *Cotyledon*.
Hilamochicá'.
Himavat'i.
5 Hingu, *Terebinthus*.
Hingul'i, *Solanum*.
Hintala, *Elate*.
Holicá.
Jambíra, *Citrus*.
10 Jambu, *Eugenia*.
Jatamáns'i, *Valeriana*.
Javà, *Terminalia* ?
Jayap'hala, *Myristica*.
Jayant'i, *Oeschynomene*.
15 Icshu, *Saccharum*.
Icshura.
Icshwácu,
Jimúta.
Indívara, *Tradescantia* ?
20 Jíraca.
Jívantí.
Indravárun'i.
Ingudí.
Irbáru.
25 'Is'watamúla, *Aristolochia*.
Lacucha, *Astrocarpus*.
Langal'i, *Nama* ?
Latárca, *Allium*.
Lasuna, *Allium*.
30 Laval'i, *Averrhoa*.
Lavanga, *Caryophyllus*.
Lodhra,
Madana, *Pisonia*.
Madhúca, *Bassia*.
35 Madhúlaca.
Madhúraca.
Madhusigru. *Guilandina*.
Mahájáli.
Maháswéta.
40 Malapu.
Málatí, *Jasminum*.
Mallicá, *Nyctanthes*.
Mánaca, *Arum*.
Mandâra, *Erythrina*.
45 Márcara.

Marcati.
Maricha, *Capſicum.*
Marunmálá.
Máſaparni.
50 Màſha, *Phaſeolus.*
Máſhandari, *Calliearpa.*
Maſúra.
Mátulanga, *Citrus.*
Mauri.
55 Mayúra.
Muchucunda, *Pentapetes.*
Mudga.
Mudgaparnì.
Múlaca, *Raphanus.*
60 Mundaballi, *Ipomœa.*
Murá.
Murvá, *Aletris.*
Muſtaca, *Schœnus.*
Nàgabalá, *Sida.*
65 Nágaballi, *Bauhinia.*
Nàgacéſara, *Meſua.*
Nàgadána, *Artemiſia.*
Nagaranga, *Citrus.*
Nala, *Ariſtida?*
70 Nali.
Náranga.
Nàricéla, *Cocos.*
Nichula, a new genus.
Nili, *Indigofera.*
75 Nilótpala, *Pontederia.*
Nimba, *Melia.*
Nivàra, *Oryza.*
Pàcala,
Padma, *Nyphœa.*
80 Palándu, *Allium.*
Paláſa, *Butea.*
Panaſa, *Artocarpus.*
Parnáſa, *Ocymum.*
Pátali, *Bignonia.*
85 Pátola, *Solanum.*
Paurá.
Pichula, *Tamarix.*
Pilu, *Aloë.*
Pinyâ.
90 Pippala, *Ficus.*
Pippalí, *Piper.*
Piyála.
Pi'taſála.
Placſha, *Ficus.*
95 Pri'ſniparní.
Priyangu.
Pótica, *Phyſalis.*
Punarnavà, *Boerhaavia.*
Pundarica.
300 Pundra.
Pûticaraja, *Guilandina.*
Ractamúla, *Oldenlandia.*
Rájádana.
Rajaní.
5 Rájica.
Ráſhtricá.
Raſná, *Ophioxylum.*
Rénuca.
Rïddhi.
10 Rïſhabha.
Róchaná.
Róhita, *Punica.*
Sácótaca, *Trophis.*
Sahacára, *Magnifera.*
15 Sahacharí.
Sailéya, *Muſcus.*
Sairlyaca, *Barleria.*
Saivala.
'Sála.
20 'Salanchí.
'Sálmali, *Bombax.*
Samangá, 2?
'Sami, *Mimoſa.*
Samíra,, *Mimoſa.*
25 Samudraca, *Aquilicia.*
Saná, *Crotalaria.*
Sanacrajatá, *Hedyſarum.*
'Sanc'hapuſhpa, *Coix.*
'Sara.
30 Sarala.
Saraná.
'Satamulí.
Satapuſhpa.
Sáthi.
35 Sep'hálicá, *Nyctanthes.*
Septalá, *Nyctanthes.*
Septaparna, *Echites.*
Serſhapa, *Synapis.*
'Simbi, *Dolichos.*
40 Sindhúca, *Vitex.*
Siríſha, *Mimoſa.*
Siſu, *Croton?*
Sivá,

Sóbhánjana, *Guilandina.*
45 Sómalatá, *Ruta?*
Sômaraj'i, *Pœderia.*
Sólp'ha.
Sónaca, *Bignonia.*
Sríngátaca, *Trapa.*
50 Sripatna.
St'halapadma, *Hibiſcus.*
Suca.
Sucri.
Suniſhnnaca, *Marſilea.*
55 Surabhi.
Súryamani, *Hibiſcus.*
Suvernaca, *Caſſia.*
Syámá, a new genus.
Syámáca.
60 Tála, *Boraſſus.*
Tálamùlaca, *Cochlearia?*
Tálí, *Corypha.*
Tamálá, *Laurus?*
Támbúlis, *Piper.*
65 Támracúta, *Nicotiana.*
Táraca, *Amomum?*
Taruni, *Aloe.*
Tatpatri, *Laurus.*
Tila, *Séſanum.*
70 Tilaca..
Tindúca, *Dioſpyros.*
Tinſa, *Ebenus*
Trupuſha, *Cucumus.*
Trayamána.
75 Trivritá.
Tubaricá.
Túla, *Morus.*
Tunga.
Udumbara, *Ficus.*
80 Ulapa, *Ariſtida.*
Upódica.
Urana, *Caſſia.*
Utpala?
Vajradru, *Euphorbia.*
85 Valvaja, *Andropogon.*
Vanacéli, *Canna.*
Vanamudga.
Vanárdraca, *Coſtus.*
Vandá, *Epidendrum.*
90 Vandá, *Loranthus.*
Vandá, *Viſcum.*
Vanaca, *Quercus.*
Vans'a, *Bambos.*
Váráhi.
95 Varàngace, *Laurus.*
Váruna.
Váſaca, *Dyanthera.*
Váſalyà.
Váſtuca, *Amaranthus.*
400 Vaſu.
Vátaca.
Vatſádaní, *Meniſpermum.*
Váyaſóli.
Vétaſa, *Barleria.*
5 Vétra, *Calamus.*
Vichitrá, *Tragia.*
Vidári.
Vidula.
Vírana, *Andropogon.*
10 Viſháni.
Viſtáraca, *Convolvulus.*
Vríthí, *Oryza.*
Vyághranac'ha.
Vyághrapáda.
15 Yáſa.
Yava, *Hordeum.*
Yavaſa, *Poa?*
Yuctáraſá.
Yút'hicá, *Jaſminum.*

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL.

BOTANICAL OBSERVATIONS

ON

SELECT INDIAN PLANTS.

BY THE LATE PRESIDENT.

'IF my names of plants displease you, says the 'great *Swedish* botanist, choose others more 'agreeable to your taste;' and, by this candour, he has disarmed all the criticism, to which, as it must be allowed, even the critical parts of his admirable works lie continually open. I avail myself of his indulgence, and am very solicitous to give *Indian* plants their true *Indian* appellations; because I am fully persuaded that *Linnæus* himself would have adopted them, had he known the learned and ancient language of this country; as he, like all other men, would have retained the native names of *Asiatic* regions and cities, rivers and mountains; leaving friends, or persons of eminence, to preserve their own names by their own merit, and inventing new ones, from distinguishing marks and properties for such objects only as, being recently discovered, could have had no previous denomination. Far am I from doubting the great importance of perfect *botanical descriptions*; for languages expire as nations decay, and the true sense of many appellatives, in every dead language, must be lost in a course of ages: but, as long as those ap-

pellatives remain underſtood, a travelling phyſician, who ſhould wiſh to procure an *Arabian* or *Indian* plant, and, without aſking for it by its learned or vulgar name, ſhould hunt for it in the woods by its *botanical character*, would reſemble a geographer, who, deſiring to find his way in a foreign city or province, ſhould never enquire, by name, for a ſtreet or a town, but wait with his tables and inſtruments, for a proper occaſion to determine its longitude and latitude.

The plants deſcribed in the following paper by their claſſical appellations, with their ſynonyma, or epithets, and their names in the vulgar dialects, have been ſelected for their novelty, beauty, poetical fame, reputed uſe in medicine, or ſuppoſed holineſs; and frequent alluſions to them all will be found, if the *Sanſcrit* language ſhould ever be generally ſtudied, in the popular and ſacred poems of the ancient *Hindus*, in their medical books and law-tracts, and even in the *Védas* themſelves. Though, unhappily I cannot profeſs, with the fortunate *Swede* to have ſeen without glaſſes all the parts of the flowers which I have deſcribed, yet you may be aſſured that I have mentioned no part of them which I have not again and again examined with my own eyes: and though the weakneſs of my ſight will for ever prevent my becoming a botaniſt, yet I have in ſome little degree atoned for that fatal defect by extreme attention, and by an ardent zeal for the moſt lovely and faſcinating branch of natural knowledge.

Before I was acquainted with the method purſued by *Van Rheed*, neceſſity had obliged me to follow a ſimilar plan on a ſmaller ſcale; and, as his mode of ſtudying botany, in a country and climate by no means favourable to botanical excurſions, may be adopted more ſucceſsfully by thoſe who have more leiſure than

I ſhall ever enjoy, I preſent you with an intereſting paſſage from one of his prefaces, to which I ſhould barely have referred you, if his great work were not unfortunately confined, from its rarity, to very few hands. He informs us, in an introduction to his third volume, "that ſeveral *Indian* phyſicians and *Bráhmens* had "compoſed, by his order, a catalogue of the moſt "celebrated plants, which they diſtributed according "to their times of bloſſoming and ſeeding, to the "configuration of their leaves, and to the forms of "their flowers and fruit; that, at the proper ſeaſons, "he gave copies of the liſt to ſeveral intelligent "men, of whom he ſent parties into different foreſts, "with inſtructions to bring him, from all quarters, ſuch "plants as they ſaw named, with their fruit, flowers, "and leaves, even though they ſhould be obliged to "climb the moſt lofty trees for them; that three or "four painters, who lived in his family, conſtantly "and accurately delineated the freſh plants, of which, "in his preſence, a full deſcription was added; that, "in the mean while, he had earneſtly requeſted all "the princes and chiefs on the *Malabar* coaſt to ſend "him ſuch vegetables as were moſt diſtinguiſhed for "uſe or for elegance; and that not one of them "failed to ſupply his garden with flowers, which "he ſometimes received from the diſtance of fifty or "ſixty leagues; that when his herbaliſts had collected "a ſufficient number of plants, when his draughtſmen "had ſketched their figures, and his native botaniſts had ſubjoined their deſcription, he ſubmitted "the drawings to a little academy of *Pandits*, whom "he uſed to convene for that purpoſe from different "parts of the country; that his aſſembly often conſiſted of fifteen or ſixteen learned natives, who vied "with each other in giving correct anſwers to all his "queſtions concerning the names and virtues of the "principal vegetables; and that he wrote all their anſwers in his note-book; that he was infinitely de-

"lighted with the candid, modeſt, amicable, and re-
"ſpectful debates of thoſe pagan philoſophers, each
"of whom adduced paſſages from ancient books in
"ſupport of his own opinion, but without any bitter-
"neſs of conteſt or the leaſt perturbation of mind;
"that the texts which they cited, were in verſe, and
"taken from books, as they poſitively aſſerted, more
"than four thouſand years old: that the firſt couplet
"of each ſection in thoſe books compriſed the ſynony-
"mous terms for the plant, which was the ſubject
"of it; and that, in the ſubſequent verſes, there
"was an ample account of its kind or ſpecies, its
"properties, accidents, qualities, figure, parts,
"place of growth, time of flowering and bearing
"fruit, medical virtues, and more general uſes;
"that they quoted thoſe texts by memory, having
"gotten them by heart in their earlieſt youth, rather
"as a play than a ſtudy, according to the immemorial
"uſage of ſuch *Indian* tribes as are deſtined by law
"to the learned profeſſions; and on that ſingular
"law of tribes, peculiar to the old *Egyptians* and *In-*
"*dians*, he adds many ſolid and pertinent remarks."
Now when we complain, and myſelf as much as any, that we have no leiſure in *India* for literary and philoſophical purſuits, we ſhould conſider that *Van Rheede* was a nobleman, at the head of an *Indian* government, in his time very conſiderable, and that he fully diſcharged all the duties of his important ſtation, while he found leiſure to compile, in the manner juſt deſcribed, thoſe twelve large volumes which *Linnæus* himſelf pronounces *accurate*.

1, *Táraca:*
Vulg. Thrac.
Linn. Amomum.
Cal. Perianth ſpathe-like, but ſitting on the germ; tubular, one-leaved, broken at the mouth into a few

irregular ſharp toothlets; downy, ſtriated; in part coloured, in part ſemi-pellucid.

Cor. One-petaled, villous. *Tube* ſhort, funnel-form. *Border* double. *Exterior* three parted; coloured like the calyx; *diviſions* oblong, ſtriated, internally concave, rounded into ſlipper-like bags; the two *lower* diviſions equal, rather deflected; the higher ſomewhat longer, oppoſite, bent in a contrary direction, terminated with a long point. *Interior*, two-lipped (unleſs the *upper*-lip be called the filament); *under*-lip revolute, with a tooth on each ſide near the baſe; two parted from the middle; *diviſions* axe-form, irregularly end-nicked. *Nectaries*, two or three honey-bearing, light brown, gloſſy bodies at the baſe of the *under* lip, juſt below the teeth; erect, awled, converging into a ſmall cone.

Stam. Filament (unleſs it be called the *upper* lip, of the *interior border*) channelled within, ſheathing the ſtyle; dilated above into the large fleſhy *anther*, if it can juſtly be ſo named. *Anther* oblong, externally convex and entire, internally flat, divided by a deep furrow; each *diviſion* marked with a perpendicular pollen-bearing line, and ending in a membraneous point.

Piſt. Germ beneath, protuberant, roundiſh, obſcurely three-ſided, externally ſoft with down. *Style*, thread-form, long as the *filament*, the top of which nearly cloſes round it. *Stigma* headed, perforated.

Per. Capſule (or *Capſular berry*, not burſting in a determinate mode) oblong-roundiſh, three-ſtriped, ſmooth, crowned with permanent calyx and corol; with a brittle coat, almoſt black without, pearly within.

Seeds lopped, with three or four angles, very ſmooth, encloſed within three oblong, rounded, ſoft, membraneous integuments, conjoined by a branchy recepticle; in each parcel, four or five.

Interior border of the corol, pink and white; *under lip* internally milk-white, with a rich carmine-ſtripe in each of its diviſions. *Seeds* aromatic, hotter than *Cardamoms*. *Leaves* alternate, ſheathing, oblong, pointed, keeled, moſt entire, margined, bright graſs-green above, very ſmooth; pale ſea-green below. *Stem* compreſſed, three or four feet long, bright pink near its baſe, erect, ending in a beautiful panicle. *Peduncles* many flowered; *bracts* few, lance-linear, very long, withering. *Root* fibrous, with two or three bulbous knobs, light brown and ſpungy within, faintly aromatic.

Although the *Taraca* has properties of an *Amomum*, and appears to be one of thoſe plants which *Rumphius* names *Globba*, yet it has the air of a *Languas*, the *fruit*, I believe, of a *Renealmia*, and no exact correſpondence with any of the genera ſo elaborately deſcribed by *Koenig*: its *eſſential character*, according to *Retz*, would conſiſt in its *two parted interior border*, its *channelled filament*, and its *two-cleft anther* with *pointed diviſions*.

2. *Bhúchampaca*:
Vulg. *Bhúchampac*.
Linn. Round-rooted *Kæmpferia*.
Cal. Common *Spathe* imbricated, many flowered; partial: *Perianth* one-leaved, ſmall, thin, obſcure.
Cor. One petaled. *Tube* very long, ſlender, ſubcylindric below, funnel-form above, ſomewhat incurved. *Border* double, each three parted; *exterior* diviſions lanced, acute, dropping; *interior*, two *higher* diviſions erect, lapping over, oblong, pointed, ſupporting the back of the anther; *lower* diviſion expanding, deflected, two cleft; *ſubdiviſions* broad, axe-form, irregularly notched, end-nicked, with a point.

Stam. Filament adhering to the throat of the *coral*, oblong below, enlarged, and two-lobed above, coloured. *Anther* double, linear, higher than the mouth of the tube, fixed on the lower part of the filament, conjoined round the piſtil, fronting the two-cleft diviſion of the border.

Piſt. Germ very low near the root, attended with a *nectareous* gland. *Style* capillary, very long. *Stigma* funnel-form below, compreſſed above; fan-ſhaped, two-lipped, downy, emerging a little from the conjoined *anther*.

Per. and *Seeds* not yet ſeen.

Scape thickiſh, very ſhort. *Corol* richly fragrant; *tube* and *exterior border* milk-white, diviſions dropping, as if ſenſitive, on the ſlighteſt touch, and ſoon yielding to the preſſure of the air; *interior border* purple, the higher diviſions diluted, the lower deeply coloured within, variegated near the baſe. One or two flowers blow every morning in *April* or *May*, wither entirely before ſun-ſet: after the *ſpike* is exhauſted, riſe the large *leaves* keeled, broad-lanced, membraneous nerved. *Root* with many roundiſh, or rather ſpindle-ſhaped *bulbs*.

This plant is clearly the *Bencházo* of *Rheede*, whoſe native aſſiſtant had written *Bhu* on the drawing, and intended to follow it with *Champá*: the ſpicy odour and elegance of the flowers, induced me to place this *Kæmpferia* (though generally known) in a ſeries of ſelect *Indian* plants; but the name *Ground Champac* is very improper, ſince the true *Champaca* belongs to a different order and claſs; nor is there any reſemblance between the two flowers, except that both have a rich aromatic ſcent.

Among all the *natural orders*, there is none in which the genera ſeems leſs preciſely aſcertained by clear *eſſential characters*, than in that which (for want of a bet-

ter denomination) has been called *ſcitamineous*; and the judicious *Retz*, after confeſſing himſelf rather diſſatisfied with his own generic arrangement, which he takes from the *border* of the corol, from the *ſtamen*, and principally from the *anther*, declares his fixed opinion, that *the genera in this order will never be determined with abſolute certainty until all the ſcitamineous plants of* India *ſhall be perfectly deſcribed.*

3. *Sép'halicá:*
Syn. Suvahá, Nirgudí, Nílicá, Niváoicá.
Vulg. Singaha, Nibári.
Linn. Sorrowful *Nyctanthes.*

In all the plants of this ſpecies examined by me, the *calyx* was villous; the *border* of the corol white, five-parted, each diviſion unequally ſubdivided; and the *tube* of a dark orange-colour; the *ſtamens* and *piſtil* entirely within the *tube*: the *berries* twin, compreſſed, capſular, two-celled, margined, inverſe-hearted, with a point. This *gay* tree (for nothing *ſorrowful* appears in its nature) ſpreads its rich odour to a conſiderable diſtance every evening; but at ſunriſe it ſheds moſt of its *night-flowers*, which are collected with care for the uſe of perfumers and dyers. My *Pandits* unanimouſly aſſure me, that the plant before us is their *Sép'hálicá*, thus named becauſe *bees* are ſuppoſed to *ſleep* on its bloſſoms; but *Nílica* muſt imply a blue colour; and our travellers inſiſt that the *Indians* give the names of *Párijáticá* or *Párijáta* to this uſeful ſpecies of *Nyctanthes*. On the other hand, I know that *Párijáta* is a name given to flowers of a genus totally different; and there may be a variety of this with *bluiſh* corols; for it is expreſsly declared in the *Amarcóſh*, that, when the *Sép'há-*
"*licá* has *white* flowers, it is named *Swétaſuraſá*, and
"*Bhútavéſi.*

4. α. *Maghya.*
Syn. Cunda.

Linn. Nyctanthes Sambac.
See *Rheede*: 6 H. M. tab. 54.
Flowers exquiſitely white, but with little or no fragrance; *ſtem, petioles*, and *calx* very downy; *leaves* egged, acute; below rather hearted.
β *Septala.*
Syn. Navamallicá, Navamálicá.
Vulg. Béla, Muta-béla.
Burm. Many-flowered Nyctanthes.
See 5 *Rumph.* tab. 30. 6 H. M. *tab.* 50.

The bloſſoms of this variety are extremely fragrant. *Zambak* (ſo the word ſhould be written) is a flower to which *Perſian* and *Arabian* poets frequently allude.

5. *Mallica.*
Syn. Trinaſúlya, Malli, Bhúpadí, Satabhíru.
Vulg. Dési-bélá.
Linn. Wavy-leaved *Nyctanthes.*
Berry globular, ſimple, one-celled. *Seed* large, ſingle, globular.

According to *Rheede*, the *Bráhmens* in the weſt of *India* diſtinguiſh this flower by the word *Caſtúri*, or *muſk*, on account of its very rich odour.

6. *'Aſp'hotá:*
Syn. Vanamallí.
Vulg. Banmallica.
Linn. Narrow-leaved *Nyctanthes.*

The *Indians* conſider this as a variety of the former ſpecies; and the flowers are nearly alike. *Obtuſe-leaved* would have been a better ſpecific name; the *petals*, indeed, are comparatively *narrow*, but not the leaves. This charming flower grows wild in the foreſts, whence it was called *Vanajáti* by the *Bráhmens*,

who aſſiſted *Rheede*; but the *Játi*, or *Malăta*, belongs I believe to the next genus.

7. *Málatí*:
Syn. *Sumaná*, *Játi*.
Vulg. *Máltì*, *Játi*, *Chambélì*.
Linn. Great flowered *Jaſmin*.
Buds bluſhing; *corol*, moſtly with purpliſh edges. *Leaves* feathered with an odd one, two or three of the terminal *leaflets* generally confluent.

Though *Málati* and *Játi* be ſynonimous, yet ſome of the native gardeners diſtinguiſh them; and it is the *Játi* only that I have examined. *Commeline* had been informed that the *Javans* give the name of *Maleti* to the *Zambak*, which in *Sanſcrit* is called *Navamallicá*, and which, according to *Rheede*, is uſed by the *Hindus* in their ſacrifices; but they make offerings of moſt odoriferous flowers, and particularly of the various *Jaſmins* and *Zambaks*.

8. *Yut'hicá*.
Syn. *Mágadhí*, *Ganicá*, *Ambaſht'há*, *Yút'hì*.
Vulg. *Jút'hi*, *Júï*.
Linn. *Azorick Jaſmin*.
Leaves oppoſite, three'd. *Branchlets* croſs-armed. *Umbels* three-flowered. *Corols* white, very fragrant. The yellow *Yút'hìcà*, ſays the *Hindus*, is called *Hémapuſhpicà*, or *golden-flowered*; but I have never ſeen it; and it may be of a different ſpecies.

9. *Amlicá*:
Syn. *Tintidí*, *Chinchá*.
Vulg. *Tintirí*; *Tamru'lhindí*, or *Indian* Date.
Linn. *Tamarindus*.

The flowers of the *Tamarind* are ſo exquiſitely beautiful, the fruit ſo ſalubrious when an acid ſher-

bet is required, the leaves ſo elegantly formed and arranged, and the whole tree ſo magnificent, that I could not refrain from giving a place in this ſeries to a plant already well known. In all the flowers, however, that I have examined, the coalition of the ſtamens appeared ſo invariably, that the *Tamarind* ſhould be removed, I think, to the *ſixteenth* claſs; and it were to be wiſhed that ſo barbarous a word as *Tamarindus*, corrupted from an *Arabic* phraſe abſurd in itſelf, ſince the plant has no ſort of reſemblance to a date-tree, could, without inconvenience, be rejected, and its *Indian* appellation admitted in its room.

10. *Sara*; or *Arrow-cane.*
Syn. *Gundra*, or playful; *Téjanaca*, or Acute.
Vulg. *Ser*, *Serheri.*
Linn. *Spontaneous Saccharum.*
Cal. *Glume* two-valved; *valves* oblong-lanced, pointed, ſub-equal, girt with ſilky diverging hairs, exquiſitely ſoft and delicate, more than twice as long as the flower.
Cor. One-valved, acute, fringed.
Stam. *Filaments* three, capillary; *Anthers* oblong, incumbent.
Piſt. *Gems* very minute; *ſtyles* two, thread-form. *Stigmas* feathery.

Flowers on a very large terminal *panicle*, more than two feet long, in the plant before me, and one foot acroſs in the broadeſt part; conſiſting of numerous compound *ſpikes*, divided into *ſpikelets*, each on a capillary jointed rachis, at the joints of which are the flowers alternately ſeſſile and pedicelled. *Common peduncle* many-furrowed, with reddiſh joints. *Valvelet* of the corol purple, or light red; ſtamens and piſtils ruddy; *ſtigmas* purple; pedicels of a reddiſh tint, finely contraſted with the long ſilvery beard of the calyx. *Leaves* very long, ſtriated, minutely ſawed;

teeth upwards; keel ſmooth, white within, ſheathing the culm; the mouth of the ſheaths thick, ſet with white hairs. *Culm* above twenty feet high; very ſmooth, round, and light; more cloſely jointed and woody near the root, which is thick and fibrous: it grows in large clumps, like the *Venu*. This beautiful and ſuperb graſs is highly celebrated in the *Purānas*, the *Indian* God of War having been born in a grove of it, which burſt into a flame; and the gods gave notice of his birth to the nymph of the *Pleiads*, who deſcended and ſuckled the child, thence named *Cárticéya*. The *Cáſá*, vulgarly *Caſia*, has a ſhorter culm, leaves much narrower, longer, and thicker hairs, but a ſmaller panicle, leſs compounded, without the purpliſh tints of the *Sara*. It is often deſcribed, with praiſe, by the *Hindu* poets for the whiteneſs of its bloſſoms, which gave a large plain, at ſome diſtance, the appearance of a broad river. Both plants are extremely uſeful to the *Indians*, who harden the internodal parts of the culms, and cut them into implements for writing on their poliſhed paper. From the *munja*, or culm, of the *Sara* was made the *maunji*, or holy thread, ordained by *Menu* to form the ſacerdotal girdle, in preference even to the *cuſa*-graſs.

11. *Dúrvá:*
Syn. *'Sataparvicá, Sahaſravírya, Bhárgavi, Rudri, Ananta'.*
Vulg. *Dúb.*
Koen. *Agroſtis Linearis.*

Nothing eſſential can be added to the mere botanical deſcription of this moſt beautiful graſs, which *Van Rheede* has exhibited in a coarſe delineation of its leaves only, under the barbarous appellation of *Beli caraga*. Its flowers, in their perfect ſtate, are among the lovelieſt objects in the vegetable world, and appear, through a lens, like minute rubies and

Durva
Agrostis linearis of Dr Koenig
E
F
a
G
a
A
B
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D
Jonesia page 252.

emeralds in conſtant motion, from the leaſt breath of air. It is the ſweeteſt and moſt nutritious paſture for cattle; and its uſefulneſs, added to its beauty, induced the *Hindus*, in their earlieſt ages, to believe that it was the manſion of a benevolent nymph. Even the *Véda* celebrates it; as in the following text of the *A't'harvana*: "May *Dúrvá*, which roſe from the water of "life, which has a hundred roots and a hundred "ſtems, efface a hundred of my ſins, and prolong "my exiſtence on earth for a hundred years!" The plate was engraved from a drawing in Dr. *Roxburgh*'s valuable collection of *Indian* graſſes.

12. *Cus'a*, or *Cus'ha.*
Syn. Cut'ha, Darbha, Pavitra.
Vulg. Cuſha.
Koen. Poa Cynoſuroides.

Having never ſeen this moſt celebrated graſs in a ſtate of perfect inforeſcence, I claſs it according to the information which Dr. *Roxburgh* has been ſo kind as to ſend me. The *leaves* are very long, with margins acutely ſawed downwards, but ſmooth on other parts, even on the keels, and with long points, of which the extreme acuteneſs was proverbial among the old *Hindus*. Every law-book, and almoſt every poem in *Sanſcrit*, contains frequent alluſions to the holineſs of this plant; and, in the fourth *Véda* we have the following addreſs to it at the cloſe of a terrible incantation: "Thee, O *Darbha*, the learned proclaim "a divinity not ſubject to age or death; thee they "call the armour of *Indra*, the preſerver of regions, "the deſtroyer of enemies; a gem that gives increaſe "to the field. At the time when the ocean reſounded, when the clouds murmured, and lightnings "flaſhed, then was *Darbha* produced, pure as a drop "of fine gold." Some of the *leaves* taper to a moſt acute, evaneſcent point; whence the *Pandits* often

ſay of a very ſharp-minded man, that his intellects are *acute as the point of* a *Cuſa*-leaf.

13. *Bandhúca*:
Syn. *Ractaca*, *Bandhujívaca*.
Vulg. *Bándhúli*, *Ronjan*.
Linn. Scarlet *Ixora*.
Cal. *Perianth* four-parted, permanent; *diviſions* coloured, erect, acute.
Cor. One-petaled, funnel-form. *Tube* cylindric, very long, ſlender, ſomewhat curved. Border four-parted; *diviſions* egged, acute, deflected.
Stam. *Filaments* four, above the throat very ſhort, incurved. *Anthers* oblong, depreſſed.
Piſt. *Germ* roundiſh, oblate beneath. *Style* thread-form, long as the tube. *Stigma* two-cleft, juſt above the throat; *diviſions* externally curved.
Per.
Seeds.
Flowers bright crimſon-ſcarlet, umbel-faſcicled. *Leaves* oval, croſs-paired, half-ſtem-claſping; pointed, pale below, dark green above, leathery, clothing the whole plant. *Stipules* between the oppoſite leaves erect, linear. *Stem* ruſſet, channelled.

The *Bandúca* flower is often mentioned by the beſt *Indian* poets; but the *Pandits* are ſtrangely divided in opinion concerning the plant which the antients knew by that name. *Rádhácánt* brought me, as the famed *Badhúca*, ſome flowers of the *Doubtful Papaver*; and his younger brother *Ramácánt* produced on the following day the *Scarlet Ixora*, with a beautiful couplet, in which it is named *Bandhúca*: Soon after, *Servóru* ſhowed me a book, in which it is ſaid to have the vulgar name *Dóp'hari'ya*, or *Meridian*; but by that *Hinduſtáni* name the *Muſelmans* in ſome diſtricts mean the *Scarlet Pentapetes*; and, in others,

the *Scarlet Hibiſcus*, which the *Hindus* call *Súryamani*, or *Gem of the Sun*. The laſt mentioned plant is the *Siaſmin* of *Rheede*, which *Linnæus*, through mere inadvertence, has confounded with the *Scarlet Pentapetes*, deſcribed in the *fifty-ſixth* plate of the ſame volume. I cannot refrain from adding, that no *Indian* god was ever named *Ixora*; and that *Is'wara*, which is indeed a title of *Siva*, would be a very improper appellation of a plant which has already a claſſical name.

14. *Carnicára:*
Syn. Drumótpala, Perivya'dha.
Vulg. Ca'ncra'; Cat'hachampa'.
Linn. Indian Pavetta.

It is wonderful that the *Pandits* of this province, both prieſts and phyſicians, are unable to bring me the flower which *Cálidáſa* mentions by the name of *Carnicátra*, and celebrates *as a flame of the woods*. The lovely *Pavetta*, which botaniſts have ſufficiently deſcribed, is called by the *Bengal* peaſants *Ca'ncrà*, which I ſhould conclude to be a corruption of the *Sanſcrit* word, if a comment on the *Amara'cóſh* had not exhibited the vulgar name *Cat'ha-champa'*; which raiſes a doubt, and almoſt inclines me to believe that the *carnica'ra* is one of the many flowers which the natives of this country improperly called wild *Champacs*.

15. *Ma'ſhandari*;
Vulg. Maſandari in *Bengal*, and *Baſtra* in *Hinduſta'n*.
Linn. American Callicarpus; yet a native of *Java?*
Cal. Perianth one-leaved, four-parted; *Diviſions* pointed, erect.
Cor. One-petaled, funnel-form; *border* four-cleft.
Stam. Filaments four, thread-form, coloured, longer than the corol. *Anthers* roundiſh, incumbent.

Piſt. *Germ* above, egged. *Style* thread-form, coloured, longer than the ſtamens. *Stigma* thickiſh, gaping.
Per.
Seeds.

Flowers minute, bright lilac, or light purple, extremely beautiful. *Panicles* axillary, one to each leaf, two-forked, very ſhort in compariſon of the leaves, downy. *Bracts* awled, oppoſite, placed at each fork of the panicle. *Leaves* oppoſite, petioled, very long, egged, veined, pointed, *obtuſely notched*, bright green and ſoft above, pale and downy beneath. *Branches* and *petiols* hoary with down. *Shrub*, with flexible branches; growing wild near *Calcutta*; its *root* has medicinal virtues, and *cures*, they ſay, a cutaneous diſorder called *Máſha*, whence the plant has its name. Though the leaves be not ſawed, yet I dare not pronounce the *ſpecies* to be new. See a note on the *Hoary Callicarpus*, 5 *Retz. Facic.* p. 1. *n.* 19.

16. *Sringáṭaca.*
Syn. *S'ringáṭaca.*
Vulg. *Singhára.*
Linn. Floating *Trapa.*

I can add nothing to what has been written on this remarkable water-plant; but as the ancient *Hindus* were ſo fond of its *nut* (from the *horns* of which they gave a name to the plant itſelf) that they placed it among their lunar conſtellations, it may certainly claim a place in a ſeries of *Indian* vegetables.

17. *Chandana.*
Syn. *Gandhaſàra*, *Malayaja*, *Bhadras'ri.*
Vulg. *Chandan*, *Sandal*, *Sanders.*
Linn. True *Santulum*; more properly *Sandalum.*
Seed large, globular, ſmooth.

Having received from Colonel *Fullarton* many ſeeds of this exquiſite plant, which he had found in the thickets of *Midnapúr*, I had a ſanguine hope of being able to deſcribe its flowers, of which *Rumphius* could procure no account, and concerning which there is a ſingular difference between *Linnæus* and *Burman* the younger, though they both cite the ſame authors, and each refers to the works of the other; but the ſeeds have never germinated in my garden, and the *Chandan* only claims a place in the preſent ſeries, from the deſerved celebrity of its fragrant wood, and the perpetual mention of it in the moſt ancient books of the *Hindus*, who conſtantly deſcribe the beſt ſort of it as flouriſhing on the mountains of *Malaya*. An elegant *Sanſcrit* ſtanza, of which the following *Verſion* is literally exact, alludes to the popular belief, that the *Vénus*, or *Bambus*, as they are vulgarly called, often take fire by the violence of their colliſion; and is addreſſed, under the allegory of a ſandal-tree, to a virtuous man dwelling in a town inhabited by contending factions: "Delight of the world, beloved *Chandana*, ſtay no longer "in this foreſt, which is overſpread with rigid perni-"cious *Vans'as*, whoſe hearts are unſound; and "who, being themſelves confounded in the ſcorch-"ing ſtream of flames kindled by their mutual attri-"tion, will conſume not their own families merely, "but this whole wood." The original word *Durvans'a* has a double ſenſe, meaning both a dangerous *bambu*, and a man with a miſchievous *offspring*. Three other ſpecies, or varieties of *Chandan*, are mentioned in the *Amaracóſha*, by the names *Tailaparnica*, *Góſ'irſha*, and *Herichandana*: the red ſandal (of which I can give no deſcription) is named *Cuchandana* from its inferior quality, *Ranjana* and *Racta* from its colour, and *Tilaparni*, or *Patranga*, from the form of its leaves.

18. *Cumuda:*
Syn. Cairava.
Vulg. Ghain-chù.
Rheede: Tsjeroea Cit Ambel. 11 H. M. t. 29.
Linn: Menianthes?
Cal. Five-parted, longer than the tube of the corol, expanding, permanent; *divisions* awled.
Cor. One-petaled. *Tube*, rather belled; *border* five-parted; *divisions* oblong, wavy on the margin: a longitudinal wing or foldlet in the middle of each. The mouth and whole interior part of the corol shaggy.
Stam. Filaments five, awled, erect; *Anthers* twin, converging; five, alternate, shorter, steril.
Pist. Germ egged, very large in proportion; girt at its base with five roundish glands. *Style* very short, if any. *Stigma* headed.
Per. Capsule four-celled, many-seeded.
Seeds round, compressed, minute, appearing rough, with small dots or points.
Leaves hearted, subtargeted, bright green on one side, dark russet on the other. *Flowers* umbel fascicled, placed on the stem, just below the leaf; *Glands* and *Tube* of the corol yellow; *border* white; both of the most exquisite texture: *Cumuda*, or Delight of the Water, seems a general name for beautiful aquatic flowers; and among them, according to *Van Rheede*, for the *Indian Menianthes*, which this in part resembles. The *divisions* of the corol may be called *three-winged*: they look as if covered with silver frost.

19. *Chitraca.*
Syn. Pát'h'in Vahni, and all other names of *Fire*.
Vulg. Chita, Chití, Chitrá.
Linn. Plumbago of Silán.
Cal. Perianth one-leaved, egg-oblong, tubular, five-sided; rugged, interspersed with minute pedicelled

glands, exuding tranſparent glutinous droplets; erect, cloſely embracing the tube of the corol; *mouth* five-toothed; *baſe* protuberant with the valves of the nectary.

Cor. One-petaled, funnel-form. *Tube* five-angled, rather incurved, *longer* than the calyx. *Border* five-parted, expanding. *Diviſions* inverſe, egg-oblong, pointed, ſomewhat keeled.

Nectary five-valved, pointed, minute, including the germ.

Stam. Filaments five, thread-form, inſerted on the valvelets of the nectary as long as the tube of the corol. *Anthers* oblong, oblique.

Piſt. Germ egged, very ſmall; at firſt, when cleared of the nectary, ſmooth; but aſſuming as it ſwells, five-angles. *Style* columnar, as long as the ſtamens. *Stigma* five-parted, ſlender.

Per. None, unleſs we give that name to the five-angled coat of the ſeed.

Seed one, oblong, obſcurely five-ſided, incloſed in a coat.

Racemas viſcid leafy. *Calyx* light green, *Corol* milk-white. *Anthers* purple, ſeen through the pellucid tube. *Leaves* alternate, egged, ſmooth, pointed, half ſheathing, partly waved, partly entire; *floral-leaves* ſimilar, minute. *Stem* flexible (climbing) many-angled, jointed at the riſe of the leaves. *Root* cauſtic; whence the name *Vahni*, and the like. *Chitraca* means *attracting the mind*; and any of the *Indian* names would be preferable to *Plumbago, or Leadwort.* The ſpecies here deſcribed, ſeems moſt to reſemble that of *Seilan*; the *roſy Plumbago* is leſs common here: the joints of its ſtems are red; the *bracts* three'd, egged, equally pointed, coloured.

20. *Cámalatá:*
Syn. Súryá-cúnti or *Sunſhine*, 11. H. M. *t.* 60.
Vulg. Cám-latá, Iſhk-pichah.
Linn. Ipomoea Quam[illegible].

The plant before us is the moſt beautiful of its order, both in the colour and form of its leaves and flowers; its elegant bloſſoms are *celeſtial roſy red, love's proper hue*, and have juſtly procured it the name of *Cámalatá*, or *Love's Creeper*; from which I ſhould have thought *Quamoclit* a corruption, if there were not ſome reaſon to ſuppoſe it an *American* word. *Camalata'* may alſo mean a mythological plant, by which all *deſires* are granted to ſuch as inhabit the heaven of *Indra*; and if ever flower was *worthy* of *paradiſe*, it is our charming *Ipomoea*. Many ſpecies of this genus, and of its near ally the *Convolvulus*, grow wild in our *Indian* provinces; ſome ſpreading a purple light over the hedges, ſome ſnow-white with a delicate fragrance; and one breathing, after ſunſet, the odour of cloves; but the two genera are ſo blended by playful nature, that very frequently they are undiſtinguiſhable by the *corols* and *ſtigmas*: for inſtance, the *Mundavalli*, or *Beautiful Climber*, of *Rheede* (of which I have often watched the large ſpiral-buds, and ſeen them burſt into full bloom) is called *Ipomoea* by *Linnæus*, and *Convolvulus* (according to the Supplement) by *Kœnig*; and it ſeems a ſhade between both. The diviſions of the *perianth* are egg-oblong, pointed; free above, intricated below; its *corol* and *tube*, thoſe of an *Ipomoea*; its *filaments* of different lengths, with *anthers* arrowed, jointed above the barbs, furrowed half-incumbent; the *ſtigmas*, two globular heads, each globe an aggregate of minute roundiſh tubercles; the *ſtem* not quite ſmooth, but here and there bearing a few ſmall prickles; the very large *corol* exquiſitely white, with greeniſh ribs, that ſeem to act as muſcles in expanding the contorted bud; its *odour* in the evening very agreeable; leſs ſtrong than the primroſe, and leſs faint than the lily. The clove-ſcented creeper, which blows in my garden at a ſeaſon and hour when I cannot examine it accurately, ſeems of the ſame genus, if not of the ſame ſpecies, with the *Mundavalli*.

21. *Cadamba:*
Syn. Nípa, Priyaca, Haliprya.
Vulg. Cadamb, Cadam.
Linn. Oriental *Nauclea.*

To the botanical defcription of this plant I can add nothing, except that I always obferved a minute five-parted *calyx* to each floret, and that the *leaves* are oblong, acute, oppofite, and tranfverfely nerved. It is one of the moft elegant among *Indian* trees, in the opinion of all who have feen it, and one of the holieft, among them, in the opinion of the *Hindus.* The Poet *Cálidás's* alludes to it by the name of *Nípa*; and it may juftly be celebrated among the beauties of fummer, when the multitude of aggregate flowers, each confifting of a *common receptacle*, perfectly globular, and covered uniformly with gold-coloured florets, from which the white thread-form *ftyles* confpicuoufly emerge, exhibits a rich and fingular appearance on the branchy trees decked with foliage charmingly verdant. The flowers have an odour, very agreeable in the open air, which the ancient *Indians* compared to the fcent of new *wine*; and hence they call the plant *Halyprya*, or *beloved by Halin*, that is, by the third *Ráma*, who was evidently the *Bacchus* of *India.*

22. *Gandíra:*
Syn. Samasht'hilà, Lavana-bhanta'ca.
Vulg. Lona-bhant; *Ins*; *Salatiyà.*
Linn. Solanum. Is it the *Verbafcum*-leaved?
Cal. Perianth one-leaved, cup-form, or belled? obfcurely five-cleft, downy, pale, frofted, permanent. *Divifions* egged, erect, pointed, very villous.
Cor. One-petaled. *Tube* very fhort. *Border* five-parted. *Divifions* oblong, pointed, expanding, villous.
Stam. Filaments five, moft fhort in the mouth of

the tube. *Anthers* oblong, furrowed, converging, nearly coalescent, with two large pores gaping above.

Pist. *Germ* roundish, villous. *Style* thread-form, much longer than the stamens. *Stigma* obtuse-headed.

Per. *Berry* roundish, dotted above, hoary, divided into cells by a fleshy *receptacle*, with two or three wings.

Seeds very many, roundish, compressed, nestling.

Leaves alternate, egg-oblong, pointed, rather wavy on the margin, delicately fringed with down; darker and very soft above, paler below, with protuberant veins, downy on both sides, mostly decurrent on the long hoary petiols.

Stem shrubby, scabrous with tubercles, unarmed. *Flowers* umbel-fascicled. *Corols* white. *Anthers* yellow. *Peduncles* and *pedicles* hoary with deciduous frost.

This plant is believed to contain a quantity of *lavana*, or *salt*, which makes it useful as a manure; but the single word *Bhanta'ca*, vulgarly *Bha'nt*, means the *Clerodendrum*, which (without being unfortunate) beautifies our *Indian* fields and hedges with its very black *berry* in the center of a bright red expanding permanent calyx. The charming little bird *Chatra'ca*, commonly called *Chatta'rya*, or *Tuntuni*, forms its wonderful nest with a leaf of this downy *Solanum*, which it sews with the silk-cotton of the *Seven-leaved Bombax*, by the help of its delicate but sharp bill: that lovely bird is well known by the *Linnæan* appellation of *Motacilla Sartoria*, properly *Sartrix*; but the figures of it that have been published, give no idea of its engaging and exquisite beauty.

23. *Samudraca:*

Syn. *Dhóla-samudra.*

Vulg. *Dhól-ſamudr.*
Linn. *Aquilicia*; but a new ſpecies.
Cal. *Perianth* one-leaved, funnel-ſhaped, five-toothed, ſhort, the *teeth* cloſely preſſing the corol; permanent.
Cor. *Petals* five, egg-oblong, ſeſſible, greeniſh; acute, curved inwards, with a ſmall angled concave appendage. *Nectary* tubular, fleſhy, five-parted, yellowiſh; *diviſions*, egg-oblong, doubled, compreſſed like minute bags with inverted mouths; encloſing the germ.
Stam. *Filaments* five, ſmooth and convex externally, bent into the top of the *nectary*, between the diviſions or ſcales, and compreſſing it into a globular figure. *Anthers* arrowed; the points hidden within the nectary, ſurrounding the *ſtigma*; the barbs without, in the form of a ſtar.
Piſt. *Germ* roundiſh. *Style* cylindric. *Stigma* obtuſe.
Per. *Berry* roundiſh, flattened, naved, longitudinally furrowed, moſtly five-celled.
Seeds ſolitary, three-ſided, externally convex. *Cymes* moſtly three-parted. *Stem* deeply channelled, jointed, two-forked. *Peduncles* alſo jointed and channelled. *Fructification* burſting laterally, where the ſtem ſends forth a petiol. *Berries* black, watery. *Leaves* alternate, except one terminal pair; hearted, pointed, toothed; twelve or fourteen of the teeeth ſhooting into lobes; above, dark green; below, pale, ribbed with proceſſes from the petiol, and reticulated with protuberant veins; the full-grown leaves above two feet long from the apex, and nearly as broad toward the baſe; many of them rather targetted. This new ſpecies may be called *large leaved*, or *Aquilicia Samudraca*. The ſpecies deſcribed by the younger *Burman*, under the name of the *Indian Staphylea*, is not uncommon at *Criſhna-nagar*; where the peaſants call it *Cáca-jangha*, or *Crow's foot*: if they are correct, we have

erroneoufly fuppofed the *Coing* of the modern *Bengalefe* to be the *Ca'ca'ngi* of the ancient *Hindus*. It muft not be omitted, that the ftem of the *Aquilicia Sambucina* is alfo channelled, but its *fructification* differs in many refpects from the defcriptions of *Burman* and *Linnæus*; though there can be no doubt as to the identity of the genus.

24. *Sómara'ji*:
Syn. Avalguja, Suballi, Sómballica', Ca'lamefhi, Crifhna'phala' Va'cuchi, Va'guji, Pu'tip'halli.
Vulg. Sómra'j, Bacuchi.
Linn. Fetid Pæderia.

The characters as in *Linnæus*, with a few variations. *Calyx* incurved. *Corol* very fhaggy within. *Style* two-cleft, pubefcent; *divifions* contorted. *Stem* climbing, fmooth. *Leaves* oppofite, long-petioled; the lower ones oblong, hearted; the higher, egg-oblong, veined, with a wavy margin. *Panicles* axillary (except the higheft) crofs armed. *Flowers* beautiful to the fight, crimfon, with milk-white edges, refembling the *Dianthus*, vulgarly called *Sweet William*, but refembling it only in form and colours; almoft fcentlefs to thofe who are very near it, but diffufing to a diftance a rank odour of carrion. All the peafants at *Crifhna-nagar* called this plant *Somra'j*; but my own fervants, and a family of *Bra'hmens* from *Tribéni*, gave that name to a very different plant of the *nineteenth* clafs, which I took, on a curfory infpection, for a *Prenanthes*.

25. *Sya'ma'*:
Syn. Gopí, Sa'riva', Ananta, Utpalafa'riva, Gópa', Gopa'lica, Gópavalli.
Vulg. Sya'ma'-lata'.
Rheede; in *Malabar* letters, *Puppa'l-valli.*

Cal. *Perianth* one-leaved, five-toothed, erect, minute, permanent.

Cor. One-petaled, salver-form. *Tube* itself cylindric, but protuberant in the middle with the germ and anthers; *throat* very villous. *Border* five-parted; *divisions* very long, lance-linear, spirally contorted, fringed, closed, concealing the fructification.

Stam. *Filaments*, if any, very short. *Anthers*, five, awled, erect, converging at the top.

Pist. *Germ* above, pedicelled, spheroidal, girt with a *nectareous* ring. *Style* thread-form, rather awled. *Stigma* simple.

Per. *Capsule* one-celled; one seeded, roundish, hispid.

Seed oval, very minute, glossy.

Flowers raceme-panicled, greenish-white, very small, scented like those of the hawthorn, but far sweeter; and thence the *Portuguese* called them *honey-flowers*.

Peduncles axillary, russet; *pedicles* many-flowered. *Branchlets* milky. *Leaves* opposite, lance-oval, pointed at both ends, most entire veined; above, dark green; below, pale. *Stipules* linear, axillary, adhering. *Stem* climbing, round, of a russet hue, rimmed at the insertion of the short *petiols*.

The ripe fruit of this elegant climber, which *Cálidás* mentions in his poem of the *Seasons*, has been seen by me only in a very dry state; but it seemed that the hispid appearance of the *capsules*, or *berries*, which in a microscope looked exactly like the burs in *Van Rheede*'s engraving, was caused by the hardened calyxes and fringe of the permanent corols; the *seeds* in each bur were numerous, and like black-shining sand, for no single pericarp could be disengaged from it; and it is described as *one-seeded*, merely from an inspection of the dissected

germ. Before I had ſeen the *fruit*, I thought the *Syáma* very nearly connected with the *Shrubby Apocynum*, which it reſembles in the *leaves*, and in parts of the *corol*.

Five of the *Sanſcrit* names are ſtrung together, by the author of the *Amaracóſh*, in the following verſe:

Goópi s'yámá s'arivá ſyádanatótpala ſarivá :

and his commentator obſerves, that the laſt name was given to the *Sáriva* from the reſemblance of its flowers to thoſe of the *Utpala*, which I thence conclude to be a *Menianthes*, eſpecially as it is always deſcribed among the *Indian* water-plants. The other ſynonymous words are taken from *Vácha$ſ$pati*.

26. *A'vigna*, or *Avinga* :

Syn. *Criſhnapácap'hala*, *Suſhénas*, *Caramardaca*.

Vulg. *Carónda*, or *Caraundà* in two dictionaries; in one, *Pàniamalà*.

Linn. *Cariſſa Carandas*.

Cal. *Perianth* five-cleft, acute, very ſmall, coloured, perſiſtent.

Cor. One-petaled, funnel-form. *Tube* longiſh; *throat* ſwoln by the incloſed anthers. *Border* five-parted; *diviſions* oblong; one ſide of each embracing the next.

Stam. *Filaments* five, extremely ſhort. *Anthers* oblong, erect.

Piſt. *Germ* above, roundiſh. *Style* thread-form, ſhort, clubbed. *Stigma* narrower, pubeſcent.

Per. Berry elliptoïdal, two-celled.

Seeds, at leaſt ſeven, oval, compreſſed, margined. *Flowers* milk-white, jaſmin-like. *Fruit* beautiful in form and colour, finely ſhaded with carmine and white; agreeably acid. *Branches* two-forked:

Leaves oppoſite, ſhort petioled, elliptic, obtuſe, moſt entire, ſmooth; ſome *ſmall leaves* roundiſh inverſe hearted. *Thorns* axillary, oppoſite, expanding; *points* bright red. *Peduncles* twin, ſubterminal, three-flowered; *pedicels* equal. The whole plant, even the fruit, milky. We have both ſpecies of *Cariſſa* in this province; but they melt, ſcarce diſtinguiſhably, into each other.

The *Pandits* have always brought me this elegant plant as the *Carcandu*, mentioned by *Jayadéva*; but, judging only by the ſhape and taſte of the fruit, they ſeem to confound it with the *Rhamnus Jujuba*; and the confuſion is increaſed by the obſcurity of the following paſſage in their beſt vocabulary:

Carcandhú, vadarí, cólí; cólam, cuvala ph'enilé,
Sauvíram, vadaram, ghónta———

All agree, that the *neuter* words mean *fruits* only; but ſome inſiſt, that the *Ghónta* is a diſtinct plant, thus deſcribed in an ancient verſe: 'The *ghónta*, 'called alſo *gópaphónta*, is a tree ſhaped like the '*Vadarí*, with a very ſmall fruit, growing only in 'foreſts.' For the *ghónta*, here known by the name of *Séha'cul*, my ſervants brought me *Rhamnus* with *leaves* alternate egg-oblong, three-nerved, obſcurely ſawed, paler beneath, and moſt beautifully veined; *floral young leaves* crowded, very long, linear; *prickles* crowded, very long, linear; *prickles* often ſolitary, ſometimes paired, one ſtraight, one curved; a ſmall globular *drupe*, quite black, with a one-celled *nut*: the flowers I never ſaw perfect; but it ſeems the *nineteenth* ſpecies of *Linnæus*. We have many ſpecies of *Rhamnus* in our woods and hedges; ſome like the *Alaternus*, polygamous by male and hermaphrodite flowers; others, diſtinguiſhed by various forms and poſitions of the *prickles* and *leaves*; but the common

Badarì or *Baiar*, is the *Jujube-tree*, deſcribed by *Rheede*; and by *Rumphius* called *Indian* Apple-tree. Its *Perſian* name is *Conár*; by which it is mentioned in the letters of *Pietro della Valle*, who takes notice of the *ſoapy froth* procured from its leaves; whence it has in *Sanſcrit* the epithet *p'hénila*, or *frothy*. To the plant the *Arabs* give the name of *Sidr*, and to its fruit that of *Nabik*; from which perhaps, *Napeca* has been corrupted.

27. *Caravíra:*
Syn. Pratiháſa, Sataprá'ſa, Chan'da'ta, Hayamá'raca.
Linn. Nerium Oleander, and other ſpecies.
Vulg. Canér, Carbír.

A plant ſo well known would not have been inſerted in this place, if it had not been thought proper to take notice of the remarkable epithet *hayama raca*, or *horſe-killer*; which roſe from an opinion ſtill preſerved among the *Hindus*, that a horſe, unwarily eating the leaves of the *Nerium*, can hardly eſcape death: moſt of the ſpecies, eſpecially their roots, have ſtrong medicinal, but probably narcotic powers. The *blue-dying Nérium* grows in woods at a little diſtance from my garden; and the *Hindu* peaſants, who brought it me, called it *Nil*, or *blue*: a proof that its quality was known to them, as it probably was to their anceſtors, from time immemorial.

28. *Septaperna*, or *ſeven-leaved:*
Syn. Viſála-twach, Sáradi, Viſhama-ch'hada.
Vulg. Ch'hitavan, Ch'hátiyán, Ch'hàton.
Linn. School Echites.
Cal. Perianth five-parted, ſub-acute, ſmall, villous, permanent; cloſing round the germ immediately on the removal of the tube.
Cor. One-petaled, funnel-form. *Tube* cylindric below, prominent above, with incloſed anthers, very

villous in the throat. *Border* five-parted, ſhorter than the tube: *diviſions* inverſe-egged, obtuſe, oblique, reflected, waved on the margin.

Nectary, a circular undivided coronet, or rim, terminating the tube, with a ſhort erect villous edge.

Stam. Filaments five, cylindric, very ſhort in the throat of the tube. *Anthers* heart-harrowed, cleft, pointed, forming a ſtar; viſible through the mouth of the tube, with points diverging.

Piſt. Germ above roundiſh-egged, very villous, ſcarce extricable; from the calyx encloſing and graſping it. *Style* cylindric, as long as the tube. *Stigma* two-parted, with parts diverging, placed on an irregular orblet.

Per. Follicles two; linear; very long, one-valved.

Seeds numerous, oblong, compreſſed with ſilky pappus, pencilled at both ends.

NOTE.

The whole plant milky. *Stem* dotted with minute whitiſh tubercles. *Leaves* moſtly ſevened in verticils at ſhort diſtances, very ſoft, oblong inverſe-egged, ſome pointed, ſome obtuſe, ſome end-nicked; ſome entire, ſome rather ſcallopped; with many tranſverſe parallel veins on each ſide of the axis; rich dark green above, diluted below. *Petiols* furrowed above, ſmooth and convex beneath, elongated into a ſtrong protuberant nerve continually diminiſhing and evaneſcent at the apex. *Stipules* above erect, acute, ſet in a coronet round the ſtem; the verticils of the leaves anſwering to the definition of fronds. *Flowers* rather ſmall, greeniſh white, with a very particular odour, leſs pleaſant than that of elder-flowers. *Peduncles* terminal, with two verticils pedicelled umbel-wiſe, but horizontal. *Pedicel*, ſix-headed, many-flowered; higheſt verticils ſimilar to thoſe heads, more crowded. *Tree* very large when full grown; light and elegant when young. This plant ſo greatly reſembles the *Pala* of *Van Rheede* (which has more of the *Nerium* than of the *Tabernæmontana*) that I ſuſpect the genus and the ſpecies to be the ſame, with ſome variety. That author ſays, that the *Brahmens* call it *Santenú*, but his *Nagari* letters make it *Savánu*; and neither of the words is to be found in *Sanſcrit*. With all due reſpect for *Plumier* and *Burman*, I ſhould call this plant *Nerium Septaparna*: it is the *Pule* of *Rumphius*, who enumerates its various *uſes* at great length and with great confidence.

29. *Arca:*

Syn. *Vasuca*, *Asp'hóta*, *Gonárúpa*, *Vicirana*, *Mandára*, *Arcaperna*; and any name of the *Sun*.

Vulg. *Acand*, *Anc*.

Linn. *Gigantic Asclepias.*

Nectaries with two glanded compressed folds, instead of *awled hornlets* at the summit; spirally eared at the base. *Filaments* twisted in the folds of the nectaries. *Anthers* flat, smooth, rather wedge-form. *Styles* near half an inch long, subcylindric. *Stigmas* expanded. *Flowers* terminal and axillary umbel-fascicled; amethyst-coloured, with some darker shades of purple on the petals and nectaries; the starred corpuscle bright yellow. *Leaves* opposite, heart oblong, mostly inverse-egged, subtargeted, very rarely stem-clasping, pointed, villous on both sides, hoary beneath, with soft down; *petiols* very short, concave and bearded above, with a thickish conical *stipule*. The whole plant filled with caustic milk. A variety of this species has exquisitely delicate milk-white flowers; it is named *Alarca* or *Pratápsa*, and highly esteemed for its antispasmodic powers. The *Padmárca*, which I have not seen, is said to have small crimson corols. The individual plants, often examined by me, vary considerably in the forms of the leaves and the tops of the nectary.

30. *Pichula:*

Syn. *J'hávaca.*

Vulg. *J'hau.*

Koen. *Indian Tamarix?*

Flowers very small, whitish, with a light purple tinge, crowded on a number of spikes, which form all together a most elegant pannicle. *Stem* generally bent, often straight, and used anciently for arrows by the *Persians*, who call the plant *Gaz*. The celebrated shaft of *Isfendiyár* was formed of it, as I learned from *Bahmen*, who first showed it to me

on a bank of the *Ganges*, but asserted that it was common in *Persia*. The *leaves* are extremely minute, sessile, mostly imbricated. *Calyx* and *corol* as described by *Linnæus*; five filaments considerably longer than the petal; *anthers* lobed, furrowed; *germ* very small; *style* scarce any; *stigmas* three, revolute, but, to my eyes, hardly feathered.

Nothing can be more beautiful than the appearance of this plant in flower during the rains, on the banks of the rivers, where it is commonly interwoven with a lovely twining *Asclepias*; of which the following description is, I hope, very exact:

31. *Dugdhicá*, or *Milk-plant*.
Syn. *Cshirávi Dugdhicá*.
Vulg. *Kyirui*, *Dúdhi*, *Dúdh-latá*.
Linn. Esculent Periploca.
Cal. One-leaved, five-parted; *divisions* awled, acute, coloured, expanding.
Cor. One-petaled, salver-form, star-like, *divisions* five, egged, pointed, fringed.
Nectary double, on a five-cleft base, gibbous between the clefts, protuded, and pointed above, surrounded with a bright green villous rim: *exterior* five-parted; *divisions* egged, converging, attenuated into daggers; each concave externally, gibbous below the cavity, which is two-parted and wrinkled within. *Interior* a five-parted corpuscle, lopped above, five-angled, surrounding the fructification.
Stam. *Filaments* scarce any. *Anthers* five, roundish, very minute, set round the summit of the lopped corpuscle.
Pist. *Germs* two, egged, pointed, erect, internally flat. *Styles* none, unless you so call the *points* of the germs. *Stigma*, none but the *interior nectary*, unless you consider that as a common *stigma*.

Per. *Follicles* two, oblong; in ſome, pointed; in others, obtuſe; inflated, one-valved; each containing a one-winged *receptacle*.
Seeds numerous, roundiſh, compreſſed, crowned with pappus.

To each pair of leaves, a peduncle moſtly two-flowered, often with three, ſometimes with five, flowers. *Calyx* reddiſh. *Corol* white, elegantly marked with purple veins; *fringe*, white, thick; *anthers* black. *Leaves* linear-awled, pointed, oppoſite, petioled, with one ſtrong nerve; *ſtipules* very ſoft, minute. *Stem* ſmooth, round, twining; the whole plant abounding with *milk*.

32 *La'ngali:*
Syn. *Saradì*, *To'yapippalì*, *Saculádanì*.
Vulg. *Cánchrà*, *Iſholangolyá*.
Rheed. *Chéru-vallél?*
Linn. *Nama* of *Sila'n*.
Cal. *Perianth* one-leaved, five-parted, villous; *diviſions* lanced, pointed, long, permanent.
Cor. One-petaled, nearly wheeled. *Tube* very ſhort. *Border* five-parted. *Diviſions* egged.
Stam. *Filaments* five, awled, expanding; from the mouth of the tube, adhering to the diviſions of the border by rhomboidal concave baſes convergent above. *Anthers* large, arrowed.
Piſt. *Germ* above, egg-oblong, two-cleft. *Styles* two, azure, funnel-form, diverging almoſt horizontally. *Stigmas* lopped, open.
Per. *Capſule* many-ſeeded.
Seeds very minute.
Stem herbaceous, branchy, ſmooth, pale, creeping. *Leaves* alternate, ſhort-petioled, moſt entire, lance-oblong, ſmooth, acutiſh. *Peduncles* moſtly axillary, ſometimes terminal, villous, often many-flowered, ſubumbelled, three-rayed, with *involucres*

general and partial. *Corols* bright blue, or violet. *Stamens* white. The plant is aquatic, and by no means peculiar to *Sílàn:* I have great reaſon, however, to doubt whether it be the *Làngali* of the *Amaracóſh*, which is certainly the *Canchrà* of *Bengal*; for though it was firſt brought to me by that name, yet my gardener inſiſts that *Canchrà* is a very different plant, which, on examination, appears to be the *Aſcending Juſſieua* of *Linnæus*, with *leaves inverſe-egged, ſmooth*, and *peduncles ſhorter*: its fibrous, creeping *roots* are purpliſh, *buoys* white, pointed, ſolitary; and at the top of the *germ* ſits a *nectary* compoſed of five ſhaggy bodies, arched like horſe-ſhoes, with external honey-bearing cavities.

33. *Umá:*
Syn. Atasí, Cſhumá.
Vulg. Tisì, Maſaná.
Linn. Moſt common Linum,
Cal. Perianth five-leaved; leaflets oblong, acute, imbricated, keeled, fringed minutely, having ſomewhat reflected at the points.
Cor. Small, blue: petals notched, ſtriated, wavy, reflex, imbricated.
Stam. Anthers light blue, converging, no rudiments of filaments.
Piſt. Germ large. *Style* pale blue. *Stigma* ſimple.
Per. Capſule pointed; furrowed.
Root ſimple.
Stem Herbaceous, low, erect, furrowed, *knotty?* naked at the baſe.
Leaves linear, three-nerved, alternate croſſwiſe, ſeſſile, ſmooth, obtuſe, reflected, ſtipuled, *glanded?*
Stipules linear. Q. a minute *gland* at the baſe.

MAHARAJA SERFOGI'S SARASW

34. *Múrvá:*

Syn. Dévì, Madhuraſá, Mórata, Tējanì, Survá, Madhus'rénì, Gòcarnì, Píluparnì.

Vulg. Muragà, Muraharà, Murgábi.

Linn. Hyacinthoïd, Aletris.

Cal. None.

Cor. One-petaled, funnel-form, ſix-angled. *Tube* ſhort, bellied with the germ. *Border* ſix-parted. *Diviſions* lanced; three quite reflected in a circle; three alternate, deflected, pointed.

Stam. Filaments ſix, awled, as long as the corol, diverging, inſerted in the baſe of the diviſions. *Anthers* oblong, incumbent.

Piſt. Germ inverſe-egged, obſcurely three-ſided, with two or three *honey-bearing* pores on the flattiſh top. *Style* awled, one-furrowed, as long as the ſtamens. *Stigma* clubbed.

Pericarp and *Seeds* not yet inſpected.

Root fibrous, tawny, obſcurely jointed, ſtolon-bearing, *Scape* long, columnar, ſheathed with leaves, imbricated from the root; a few ſheaths above, ſtraggling. *Leaves* fleſhy, channelled, ſword-form, keeled, terminated with awls, the interior ones longer, moſtly arched, variegated with tranſverſe undulating bands of a dark green hue, approaching to black.

Raceme erect, very long. *Flowers*, from three to ſeven in each faſcicle, on very ſhort petiols. *Bracts* linear, minute. *Corols* pale pea-green, with a delicate fragrance, reſembling that of the *Peruvian Heliotrope*; ſome of the *Sanſcrit* names allude to the *honey* of theſe delicious flowers; but the nectareous pores at the top of the germ are not very diſtinct: in one copy of the *Amaracóſha* we read *Dhanuh-s'rénì* among the ſynonyma; and if that word, which means *a ſeries of bows*, be correct, it muſt allude either to the *arched leaves* or to the *reflected diviſions* of the corol. This *Aletris*

appears to be a *night-flower*; the raceme being covered every evening with fresh blossoms, which fall before sun-rise.

From the leaves of this plant, the ancient *Hindus* extricated a very tough elastic thread, called *Maurvi*, of which they made bow-strings, and which, for that reason, was ordained by *Menu* to form the sacrificial zone of the *military* class.

35. *Taruni:*
Syn. Saha', Cumari'.
Vulg. Ghrita-cuma'ri.
Linn. Two-ranked Aloe, A Perfoliata, P?
Flowers racemed. pendulous, subcylindric, rather incurved. *Bracts*, one to each peduncle, awled, concave, deciduous, pale, with three dark stripes. *Corol* six-parted; three *external divisions*, orange-scarlet; *internal divisions*, orange-scarlet; *internal*, yellow, keeled, more fleshy, and more highly coloured in the middle. *Filaments* with a double curvature. *Germ* six-furrowed. *Stigma* simple. *Leaves* awled, two-ranked; the lowest expanding; sea-green, very fleshy; externally quite convex, edged with soft thorns; variegated on both sides with white spots. *Van Rheede* exhibits the *true Aloe* by the name of *Cumári*; but the specimen brought me by a native gardener, seemed a variety of the *two-ranked*, though melting into the species, which immediately precedes it in *Linnæus*.

36. *Bacula.*
Syn. Césara.
Vulg. Mulsari, or *Múlasri.*
Linn. Mimusops Elengi.
Cal. Perianth eight-leaved; *leaflets* egged, acute, permanent; four *interior*, simple; four *exterior*, leathery.

Cor. Petals ſixteen, lanced, expanding; as long as the *calyx*; *Nectary* eight-leaved; *leaflets* lanced, converging round the ſtamen and piſtil.

Stam. Filaments eight (or from ſeven to ten) awled, very ſhort, hairy. *Anthers* oblong, erect.

Piſt. Germ above, roundiſh, villous. *Style*, cylindric. *Stigma* obtuſe.

Per. Drupe oval, pointed; bright orange-ſcarlet.

Nut oval, wrinkled, flattiſh, and ſmooth at one edge; broad and two-furrowed at the other.

Flowers agreeably fragrant in the open air, but with too ſtrong a perfume to give pleaſure in an apartment. Since it muſt require the imagination of a *Burman* to diſcover in them a reſemblance to the face of a man, or of an ape, the genus, will, I hope, be called *Bacula*; by which name it is frequently celebrated in the *Purànas*, and even placed among the flowers of the *Hindu* paradiſe. *Leaves* alternate, petioled, egg-oblong pointed, ſmooth. The tree is very ornamental in parks and pleaſure-grounds.

37. *Aſóca:*

Syn. Vanjula.

Cal. Perianth two-leaved, cloſely embracing the tube.

Cor. One-petaled. *Tube* long; cylindric, ſubincurved; *mouth* encircled with a nectareous rim. *Border* four-parted; *diviſions*, roundiſh.

Stam. Filaments eight, long, coloured, inſerted on the rim of the tube. *Anthers* kidney-ſhaped.

Piſt. Germ above, oblong, flat. *Style* ſhort, downy. *Stigma bent*, ſimple.

Per. Legume long, compreſſed at firſt, then protuberant with the ſwelling ſeeds; incurved, ſtrongly veined and margined, ſharp-pointed.

Seeds from two to eight, ſolid, large, many-ſhaped, ſome oblong-roundiſh, ſome rhomboidal, ſome rather kidney-ſhaped, moſtly thick, ſome flat. *Leaves*

egg-oblong-lanced, oppoſite, moſtly five-paired, nerved; long, from four or five to twelve or thirteen inches.

The *number* of ſtamens varies conſiderably in the ſame plant: they are from ſix or ſeven to eight or nine; but the regular number ſeems *eight*, one in the interſtices of the corol, and one before the centre of each diviſion. Moſt of the flowers, indeed, have one abortive ſtamen, and ſome only mark its place, but many are perfect; and *Van Rheede* ſpeaks of *eight* as the conſtant number: in fact no part of the plant is conſtant. *Flowers* faſcicled, fragrant juſt after ſun-ſet, and before ſun-riſe, when they are freſh with the evening and morning dew; beautifully diverſified with tints of orange-ſcarlet, of pale yellow, and of bright orange, which grows deeper every day, and forms a variety of ſhades according to the age of each bloſſom that opens in the faſcicle. The vegetable world ſcarce exhibits a richer ſight than an *Asóca*-tree in full bloom: it is about as high as an ordinary cherry-tree. A *Bráhman* informs me, that one ſpecies of the *Asóca* is a creeper; and *Javadéva* gives it the epithet *voluble*: the *Sanſcrit* name will, I hope, be retained by botaniſts, as it perpetually occurs in the old *Indian* poems, and in treatiſes on religious rites.

38. *S'aivála:*

Syn. Janalílí. S'aivalí.

Vulg. Simár, Syálá, Pátaſyálá, Séhálá.

Linn. Vallisneria? R.

Cal. Common Spathe one-leaved, many flowered, very long, furrowed, two-cleft at the top; each diviſion end-nicked. *Proper Perianth* three-parted; *diviſions* awled.

Cor. Petals three, linear, long, expanding, fleſhy.

Stam. *Filaments* invariably nine, thread-form. *Anthers* erect, oblong, furrowed.

Pist. *Germ* egged, uneven. *Styles* always three, ſhort, awled, expanding. *Stigmas* three, ſimple.

Per. *Capſule* very long, ſmooth, awled, one-celled, infolded in an angled *Spathe*.

Seeds very numerous, murexed, in a viſcid mucus.

Flowerets, from ſix to fourteen, ſmall. *Scape* compreſſed, very narrow, fleſhy, furrowed in the middle.

Pedicel of the floweret thread-form, crimſon above; proper *perianth*, ruſſet; *petals* white; *anthers* deep yellow. *Leaves* ſword-form, pointed, very narrow, ſmooth, and ſoft, about two feet long, crowded, white at the baſe. *Root* ſmall, fibrous. It flouriſhes in the ponds at *Criſhna-nagar*. The refiners of ſugar uſe it in this province. If this plant be a *Villiſneria*, I have been ſo unfortunate as never to have ſeen a female plant, nor fewer than nine ſtamens in one bloſſom out of more than a hundred, which I carefully examined.

39. *Púticaraja :*
Syn. *Pracírya*, *Pútica*, *Calimáraca*.
Vulg. *Nátácaranja*.
Linn. *Guilandina Bonduccella*.

The ſpecies of this genus vary in a ſingular manner: on ſeveral plants, with the oblong leaflets and *double prickles* of the *Bonduccella*, I could ſee only *male* flowers as *Rheede* has deſcribed them; they were yellow, with an aromatic fragrance. Others, with ſimilar *leaves* and *prickles*, were clearly *polygamous*, and the flowers had the following character.

MALE.

Cal. *Perianth* one-leaved, ſalver-form, downy; *Border* five-parted, with equal oblong *diviſions*.

Cor. Petals five, wedge-form, obtusely notched at the top; four equal, erect, the fifth depressed.

Stam. Filaments ten, awled, inserted in the calyx, villous, very unequal in length. *Anthers* oblong, furrowed, incumbent.

HERMAPHRODITE.

Calyx, Corol, Stamens, as before.

Pist. Germ oblong, villous. *Style* cylindric, longer than the filaments. *Stigma* simple.

Per. and *Seeds* well described by *Linnæus*.

Flowers yellow; the depressed petal variegated with red specks. *Bracts* three-fold, roundish, pointed. *Spikes* set with floral leaflets, lanced, four-fold, reflected.

40. *Sobhánjana*:

Syn. Sigru, Ticshna, Gandhaca, A'cshíva, Móchaca.

Vulg. Sajjana, Moranga.

Linn. Guilandina Moringa.

Cal. Perianth one-leaved. *Tube* short, unequal, gibbous. *Border* five-parted. *Divisions* oblong-lanced, subequal; first deflected, then revolute; coloured below, white above.

Cor. Petals five, inserted into the calyx, resembling a boat-form flower. *Wing*-like, *two*, inverse-egged, clawed, expanding.

Awning-like, two, inverse-egged, erect; *claws* shorter.

Keel-like, one, oblong, concave; enclosing the fructification; beyond it, spatuled; longer than the *wing*-petals.

Stam. Filaments five, fertile; three bent over the pistil: two shorter, inserted into the claws of the middle petals. *Anthers* twin, rather mooned, obtuse, incumbent. *Five* steril (often *four* only) alternate with the fertile, shorter; their bases villous.

Pist. *Germ* oblong, coloured, villous; below it a nectar-bearing gland. *Style* shorter than the stamen, rather downy, curved, thicker above. *Stigma* simple.

Per. *Legume* very long, slender, wreathed, pointed, three-sided, channelled, prominent with seeds, one-celled.

Seeds many, winged, three-sided.

Tree very high; *branches* in an extreme degree light and beautiful, rich with clustering flowers. *Stem exuding* a red gum. *Leaves* mostly thrice-feathered with an odd one; *leaflets* some inverse-egged, some egged, some oval, minutely end-nicked. *Raceme-panicles* mostly axillary. In perfect flowers the whole calyx is quite deflected, counterfeiting five petals; whence *Van Rheede* made it a part of the corol. *Corols* delicately odorous; milk-white, but the two central erect petals beautifully tinged with pink. The *root* answers all the purposes of our horse-radish, both for the table and for medicine; the fruit and blossoms are dressed in *caris*. In hundreds of its flowers, examined by me with attention, five stamens and a pistil were invariably perfect; indeed, it is possible that they may be only the female hermaphrodites, and that the males have ten perfect stamens with pistils abortive; but no such flowers have been discovered by me after a most diligent search.

There is another species or variety, called *Menhu Sigru*, that is Honey-*Sigru*: a word intended to be expressed on *Van Rheede*'s plate in *Nagari* letters; its vulgar name is *Muna*, or *Racta sajjana*, because its flowers or wood are of a *redder* hue.

Linnæus refers to Mrs. *Blackwell*, who represents this plant by the name of *Balanus Myrepsica*, as the

celebrated *Ben*, properly *Bá'n*, of the *Arabian* physicians and poets.

41. *Cóvidára*:

Syn. *Ca'nchana'ra*, *Chamarica*, *Cuddala*, *Yugapatra*.

Vulg. *Cachna'r*, *Racta ca'nchan*.

Linn. *Variegated Bauhinia*.

Cal. *Perianth* one-leaved, obſcurely five-cleft, deciduous.

Cor. *Petals* five, egged, clawed, expanded, wavy; one more diſtant, more beautiful, ſtriated.

Stam. *Filaments* ten, unequally connected at the baſe; five ſhorter. *Anthers* double, incumbent.

Piſt. *Germ* above, oblong. *Style* incurved. *Stigma* ſimple, aſcending.

Per. *Legume* flattiſh, long, pointed, moſtly five-celled.

Seeds moſtly five; compreſſed, wrinkled, roundiſh.

Leaves rather hearted, two-lobed; ſome with rounded, ſome with pointed, lobes. *Flowers* chiefly purpliſh and roſe-coloured, fragrant; the ſweet and beautiful buds are eaten by the natives in their ſavoury meſſes. We have ſeen many ſpecies and varieties of this charming plant: one had racemed flowers, with petals equal, expanding, lanced, exquiſitely white, with a roſe-coloured ſtripe from the baſe of each to its centre; *anthers* four only, fertile; ſix much ſhorter, ſteril; a ſecond had three fertile, and ſeven very ſhort, barren; another had light purple corols, with no more than five filaments, three longer, coloured, curved in a line of beauty. A noble *Climbing Bauhinia* was lately ſent from *Népál*; with flowers racemed, cream-coloured; *ſtyle* pink; *germ* villous: *ſtamens* three filaments, with rudiments of two more; *ſtem* downy, four-furrowed, often ſpirally. *Tendrils* oppoſite, below the leaves. *Leaves* two-lobed, extremely large: it is a ſtout climber up

the higheſt *Arundo Vénu.* The *Sanſcrit* name *Mandára* is erroneouſly applied to this plant in the firſt volume of *Van Rheede.*

42. *Capitt'ha:*
Syn. *Gráhin. Dadhitt'ha, Manmat'ha, Dadhip'hala, Puſhpap'hala, Dantas'at'ha.*
Vulg. *Cat'h-bél.*
Koen. *Crateva, Valanga.*
Cal. *Perianth* five-parted, minute, deciduous; *diviſions* expanded, acute.
Cor. *Petals* five, equal, oblong, reflected.
Stam. *Filaments* ten, very ſhort, with a ſmall *gland* between each pair, awled, furrowed. *Anthers* thick, five times as long as the filaments; furrowed, coloured, erect, expanding.
Piſt. *Germ* roundiſh, girt with a downy coronet. *Style* cylindric, ſhort. *Stigma* ſimple.
Per. *Berry* large ſpheroidal, rugged, often warted externally, netted within; many-ſeeded.
Seeds oblong-roundiſh, flat, woolly, neſtling in five parcels, affixed by long threads to the branchy receptacles.
Flowers axillary, moſtly toward the unarmed extremity of the branch. *Diviſions* of the *Perianth* with pink tips; *petals* pale; *anthers* crimſon, or covered with bright yellow pollen. *Fruit* extremely acid before its maturity; when ripe, filled with dark brown pulp, agreeably ſubacid. *Leaves* jointedly feathered with an odd one; *leaflets* five, ſeven, or nine; ſmall, gloſſy, very dark on one ſide, inverſe-hearted, obtuſely-notched, dotted round the margin with pellucid ſpecks, very ſtrongly flavoured and ſcented like aniſe. *Thorns* long, ſharp, ſolitary, aſcending, nearly croſs-armed, axillary, three or four petiols to one thorn. *Kleinhoff* limits the height of the tree to *thirty* feet, but we have young trees forty or fifty feet high; and at *Bandell*

there is a full-grown *Capitt'ha*, equal in ſize to the true *Bilva*; from its fancied reſemblance to which the vulgar name has been taken. When the trees flouriſh, the air around them breathes the odour of aniſe, both from the leaves and the bloſſoms; and I cannot help mentioning a ſingular fact which may indeed have been purely accidental: not a ſingle flower, out of hundreds examined by me, had both *perfect germs* and anthers *viſibly fertile*, while others, on the ſame tree and at the ſame time, had their anthers profuſely covered with *pollen*, but ſcarce any *ſtyles*; and *germs* to all appearance *abortive*.

43. *Cuvéraca*:
Syn. *Tunna*, *Tuni*, *Cach'ha*, *Cantalaca*, *Cuni*, *Nandivricſha*:
Vulg. *Túni*, *Tún*; abſurdly *Viláyati Nim*.
Linn. Between *Cedrela* and *Swietenia*.
Cal. *Perianth* one-leaved, five-cleft, minute, deciduous; *diviſions* roundiſh, concave, villous, expanding.
Cor. Rather belled. *Petals* five, inverſe-egged, obtuſe, concave, erect, white with a greeniſh tint, three exterior lapping over the *two* others. *Nectary* ſhort, five-parted; *diviſions* roundiſh, orange-ſcarlet, bright and concave at the inſertion of the ſtamens; rather downy.
Stam. *Filaments* five; inſerted on the *diviſions* of the nectary, awled, ſomewhat converging, nearly as long as the ſtyle. *Anthers* doubled, ſome three-parted, curved, incumbent.
Piſt. *Germ* egged, obſcurely five-cleft. *Style* awled, erect, rather longer than the corol. *Stigma* broad-headed, flat, bright green, circular, ſtarred.
Per. *Capſule* egged, five-celled, woody, gaping at the baſe. *Receptacle* five-angled.
Seeds imbricated, winged.

Leaves feathered, ſcarce ever with an odd one; *pairs* from ſix to twelve; *petioles* gibbous at their inſertion, channelled on one ſide, convex and ſmooth on the other. *Stipules* thick, ſhort, roundiſh; *leaflets* oblong-*lanced*, pointed, waved, veined; nerve on one ſide. *Panicles* large, diffuſe, conſiſting of compound racemes. *Nectaries* yielding a fine yellow dye. *Wood* light, in colour like *Mahagoni*.

44. *Nichula:*
Syn. Ambuja, Ijjala.
Vulg. Hijala, Badia, Jyúli.
Cal. Perianth one-leaved, belled, fleſhy, downy-coloured, permanent, five-parted; *diviſions* erect, pointed.
Cor. Five-petaled; *petals* egged, ſhort pointed, revolute, downy within and without.
Stam. Filaments ten, five moſtly ſhorter; inſerted in the bell of the calyx; awled, villous. *Anthers* erect, oblong, furrowed.
Piſt. Germ egg-oblong, very villous. *Style* threadform, curved. *Stigma* headed, with five obtuſe corners.
Per. Drupe ſub-globular.
Nut ſcabrous, convex on one ſide, angled on the other.
Leaves feathered; *pairs*, from five to nine; *leaflets* oblong, daggered, notched. *Calyx* pale pink. *Corol* darker pink without, bright yellow within. *Cyme* terminal, ſpreading.

45. *Atimucta:*
Syn. Pun'draca, Váſantí, Mádhavílatá.
Vulg, Mádhavílatà.
Linn. Bengal Baniſteria.
Rheede: Dewenda, 6 H. M. tab. 59.
Cal, Perianth one-leaved, five-parted, permanent;

divisions coloured, oblong-oval, obtuse; between two of them a rigid glossy honey-bearing *tubercle*, hearted, acute.

Cor. Five-petaled, imitating a boat-form corol. *Wings*, two petals, conjoined back to back, involving the *nectary*, and retaining the honey.

Awning, large concave, more beautifully coloured. *Keel*, two petals, less than the wings, but similar. All five roundish, elegantly fringed, with reflected margins, and short oblong claws.

Stam. Filaments ten; one longer. *Anthers* oblong, thickish, furrowed.

Pist. Germs two, or three, coalesced. *Style* one, thread-form, incurved, shorter than the longest filament. *Stigma* simple.

Per. Capsules two or three, mostly two, coalesced back to back; each keeled, and extended into three oblong membraneous *wings*, the lateral shorter than the central.

Seeds roundish, solitary.

Racemes axillary. *Flowers* delicately fragrant; white, with a shade of pink; the large petal supported by the nectareous tubercle, shaded internally with bright yellow and pale red. *Bracts* linear; *Wings* of the seed light brown; the long one russet. *Leaves* opposite, egg-oblong, pointed. *Petiols* short. *Stipules* linear, soft, three or four to each petiol. Two *glands* at the base of each leaf. *Stem* pale brown, ringed at the insertion of the leaves, downy.

This was the favourite plant of *Sacontala*, which she very justly called the *Delight of the Woods*; for the beauty and fragrance of its flowers give them a title to all the praises which *Ca'lida's* and *Jayadéva* bestow on them: it is a gigantic and luxuriant climber; but, when it meets with nothing to grasp, it assumes the form of a sturdy tree, the highest branches of which

display, however, in the air their natural flexibility and inclination to climb. The two names, *Vásantì* and *Mádhavì*, indicate a *vernal* flower; but I have seen an *Atimucta* rich both in blossoms and fruit on the first of *January*.

46. *'Amrátaca:*
Syn. Pítana, Capítaná.
Vulg. A'mdá, pronounced *A'mra*, or *A'mlá*.
Linn. Spondias Myrobalan β, or a new species.

The *natural character* as in *Linnæus*. *Leaves* feathered with an odd one; *leaflets*, mostly five-paired, egg-oblong, pointed, margined, veined, nerved; *common petiol* smooth, gibbous at the base. *Flowers* raceme-panicled, yellowish white. *Fruit* agreeably acid; thence used in cookery. *Van Rheede* calls it *Ambadò* or *Ambalam*; and, as he describes it with *five* or *six* styles, it is wonderful that *Hill* should have supposed it a *Chrysobalanus*.

47. *Hémasagára*, or *the Sea of Gold*.
Vulg. Himsagar.
Linn. Jagged-leaved *Cotyledon*.
Cal. Perianth four-cleft; *divisions* acute.
Cor. One-petaled: *Tube* four-angled, larger at the base; *border* four-parted; *divisions* egged, acute. *Nectary* one minute, concave scale at the base of each germ.
Stam. Filaments eight, adhering to the tube; *four* just emerging from its mouth; *four* alternate, shorter. *Anthers* erect, small, furrowed.
Pist. Germ four, conical. *Styles*, one from each germ, awled, longer than the filament. *Stigmas* simple.
Per. Capsules four, oblong, pointed, bellied, one valved, bursting longitudinally within.
Seeds numerous, minute.

Panicles terminal. *Flowers* of the brighteſt gold-colour. *Leaves* thick, ſucculent, jagged, dull ſea-green. *Stem* jointed, bending, in part recumbent. This plant flowers for many months annually in *Bengal*: in one bloſſom out of many, the numbers were *ten* and *five*; but the filaments alternately long and ſhort.

48. *Madhúca*:
Syn. Gurapuſhpa, *Madhudruma*, *Vánapraſt'ha*, *Madhuſht'híla*, *Madhu*.
Vulg. Maüyála, *Mahuyá*, *Mahwá*.
Linn. Long-leaved *Baſſia*.

49. *Cahlára* *:
Syn. Saugandhica, or *Sweet-ſcented*.
Vulg. Sundhí-hálá, or *Sundhí-hálá-náli*.
Linn. Nympæa Lotos.
Calyx as in the genus.
Cor. Petals fifteen, lanced, rather pointed and keeled; the exterior ſeries green without, imitating an interior calyx.
Stam. Filaments more than forty; below, flat, broad; above narrow, channelled within, ſmooth without; the outer ſeries erect, the inner ſomewhat converging. *Anthers* awled, erect; ſome coloured like the petals.
Piſt. Germ large, orbicular, flat at the top, with many (often ſeventeen) furrows externally, between which ariſe as many proceſſes, converging toward the *ſtigma*; the diſk marked with as many furrowed rays from the center, uniting on the margin with the converging proceſſes. *Stigma* round-

* According to the ſacred Grammar, this word was written *Cahlhára*, and pronounced as *Callara* would be in ancient Britiſh. When the flowers are red, the plant is called *Hallaca* and *Racta ſandhaca*.

iſh, rather compreſſed, ſeſſile in the centre of the diſk, permanent.

Per. *Berry* in the form of the *germ* expanded, with ſixteen or ſeventeen cells.

Seeds very numerous, minute, roundiſh. *Flowers* beautifully azure, when full blown more diluted; leſs fragrant than the red, or roſe-coloured, but with a delicate ſcent. *Leaves* radical, very large, ſub-targeted, hearted, deeply ſcollop-toothed. On one ſide dark purple, reticulated; on the other dull green, ſmooth. *Petiols* very ſmooth and long, tubular. The ſeeds are eaten, as well as the bulb of the root, called *Sálúca*; a name applied by *Rheede* to the whole plant, though the word *Camala*, which belongs to another *Linnæan* ſpecies of *Nymphæa*, be clearly engraved on his plate in *Nágarì* letters. There is a variety of this ſpecies with leaves purpliſh on both ſides; flowers dark crimſon, calycine petals richly coloured internally, and anthers flat, furrowed, adhering to the top of the filaments: the petals are more than fifteen, leſs pointed, and broader than the blue, with little odour.

The true Lotos of *Egypt* is the *Nymphæa Nílúfer*, which in *Sanſcrit* has the following names or epithets: *Padma*, *Nalina*, *Aravinda Mahotpala*, *Camala*, *Cuſéſhaya*, *Sahaſrapatra*, *Sárasa*, *Pancéruha*, *Támarasa*, *Sarasíruha*, *Rájíva*, *Vis'aprasúna*, *Puſhcara*, *Ambhóruha*, *Setapatra*. The new-blown flowers of the roſe-coloured *Padma*, have a moſt agreeable fragrance: the white and yellow have leſs odour: the blue, I am told, is a native of *Caſhmír* and *Perſia*.

50. *Champaca*:
Syn. *Chámpéya*, *Hémapuſhpaca*.
Vulg. *Champac*, *Champá*.
Linn. *Michelia*.

The delineation of this charming and celebrated plant, exhibited by *Van Rheede*, is very correct, but rather on too large a ſcale: no material change can be made in its *natural character* given by *Linnæus*; but, from an attentive examination of his two *ſpecies*, I ſuſpect them to be *varieties* only, and am certain that his trivial names are merely different ways of expreſſing the ſame word. The ſtrong aromatic ſcent of the gold-coloured *Champac*, is thought offenſive to the bees, who are never on its bloſſoms; but their elegant appearance on the black hair of the *Indian* women is mentioned by *Rumphius*; and both facts have ſupplied the *Sanſcrit* poets with elegant alluſions. Of the wild *Champac*, the leaves are lanced, or lance-oblong; the three leaflets of the *calyx* green, oval, concave; the *petals* conſtantly ſix, cream-coloured, fleſhy, concave, with little ſcent; the three *exterior* inverſe-egged; the three *interior* more narrow, ſhorter pointed, converging; the *anthers* clubbed, cloſely ſet round the baſe of the imbricated *germs*, and with them forming a cone; the *ſtigmas* minute, jagged.

Both Mr. *Marſden* and *Rumphius* mention the blue *Champac* as a rare flower, highly prized in *Sumatra* and *Java*; but I ſhould have ſuſpected that they meant the *Kæmperia Bhúchampac*, if the *Dutch* naturaliſt had not aſſerted that the plant which bore it was a tree reſembling the *Champaca* with yellow bloſſoms: he probably never had ſeen it; and the *Bráhmens* of this province inſiſt, that it flowers only in paradiſe.

51. *Dévadáru.*
Syn. *Sacrapádapa*, *Páribhadraca*; *Bhadradáru*, *Duhcilima*, *Pítadáru*, *Dáru*, *Púticáſht'ha*.
Vulg. *Dévadár.*
Linn. *Moſt lofty Unona.*

52. *Parna'sa:*
Syn. Tulasí, Cat'hinjara, Cut'héraca; Vrindá.
Vulg. Tulosì, Talsi.
Linn. Holy Ocymum?

The Natural Character as in Linnæus.

See 10 H. M. p. 173.

It is wonderful that *Rheede* has exhibited no delineation of a shrub so highly venerated by the *Hindus*, who have given one of its names to a *sacred* grove of their *Parnassus* on the banks of the *Yamunà*; he describes it however, in general terms, as resembling another of his *Tolassis* (for so he writes the word, though *Tulasí* be clearly intended by his *Na'garì* letters); and adds, that *it is the only species reputed holy, and dedicated to the god Vishnu.* I should, consequently, have taken it for the *Holy Ocynum* of *Linnæus*, if its odour, of which that species is said to be nearly destitute, had not been very aromatic and grateful; but it is more probably a variety of that species than of the *Small-flowered*, which resembles it a little in fragrance. Whatever be its *Linnæan* appellation, if it have any, the following are the only remarks that I have yet had leisure to make on it.

Stem one or two feet high, mostly incurved above; knotty and rough below. *Branchlets* cross-armed, channelled. *Leaves* opposite, rather small, egged, pointed, acutely sawed; purple veined beneath, dark above. *Petiols* dark purple, downy. *Racemes* terminal; *Flowers* verticilled three-fold or five-fold, cross-armed, *verticils* from seven to fourteen; *Peduncles* dark purple, channelled, villous; *Bracts* sessile, roundish, concave, reflected. *Calyx* with its upper lip orbicular, deeply concave externally. *Corol* bluish purple. The whole plant has a dusky

purpliſh hue, approaching to *black*, and thence, perhaps, like the large *black bee* of this country, it is held ſacred to *Criſhna*; though a fable, perfectly *Ovidian*, be told in the *Puranas* concerning the metamorphoſis of the nymph *Tulaſi*, who was beloved by the paſtoral God, into the ſhrub, which has ſince borne her name. It may not be improper to add, that the *White Ocymum* is in *Sanſcrit* called *Arjaca*.

53. *Pátali*:

Syn. *Pátala*, *Amóghá*. *Cáchaſt'háli*, *P'haléruhà*, *Criſhnavrintà*, *Cuvéráchì*. Some read *Móghá* and *Cáláſt'háli*.

Vulg. *Páralá*, *Pàrali*, *Pa'rul*.

Linn. *Bignonia*. *Chelonoides?*

Cal. *Perianth* one-leaved, belled, villous, withering, obſcurely five-angled from the points of the diviſions, five-parted; *diviſions* roundiſh, pointed, the two loweſt moſt diſtant.

Cor. One-petaled, belled. *Tube* very ſhort; *throat* oblong-belled, gibbous. *Border* five-parted, the *two higher* diviſions reflected, each minutely toothed; convex externally; the *three lower* diviſions, above, expanded; below, ribbed, furrowed, very villous. *Palate* nearly cloſing the throat. *Nectary*, a prominent rim, ſurrounding the germ, obſcurely five-parted.

Stam. *Filaments* four *or five*, incurved, inſerted below the *upper* diviſion of the border, ſhorter than the corol, with the *rudiment* of a fifth or ſixth, between two ſhorter than the reſt. *Anthers* two-cleft, incumbent at obtuſe angles.

Piſt. *Germ* oblong-conical. *Style* thread-form, as long as the ſtamens. *Stigma* headed with two folds, often cloſed by viſcidity.

Per. *Capſule* one-celled, two valved, twelve inches long at a medium, and one inch thick; rounded,

four-ſided, pointed, incurved, rather contorted, diminiſhed at both ends, dotted with aſhy ſpecks, here and there ſlightly prominent, ſtriated; two ſtripes broader, very dark, at right angles with the valves.

Rec. A ſeries of hard, broadiſh, woody rings, cloſely ſtrung on two wiry central threads.

Seeds numerous, *forty-eight* on an average, three-angled, inſerted by one angle in cavities between the rings of the receptacle, into which they are cloſely preſſed by parallel ribs in the four ſides of the capſule; winged on the two other angles with long ſubpellucid membranes, imbricated along the ſides of the receptacle.

Tree rather large. *Stem* ſcabrous.

Branchlets croſs-armed, yellowiſh green, ſpeckled with ſmall white lines. *Leaves* feathered with an odd one; two or three paired, petioled. *Leaflets* oppoſite, egged, pointed, moſt entire, downy on both ſides, veined; older leaflets roughiſh, margined, netted and paler below, daggered. *Petiols* tubercled, gibbous at the baſe; of the paired leaflets, very ſhort; of the odd one, longer. *Stipules* linear. *Flowers* panicled; *pedicels* oppoſite, moſtly three-flowered; an odd flower ſubſeſſile between the two terminal pedicels. *Corol*, externally, light purple above, browniſh purple below, hairy at its convexity; internally dark yellow below, amethyſtine above; exquiſitely fragrant, preferred by the bees to all other flowers, and compared by the poets to the quiver of *Cámadéva*, or the God of Love. The whole plant, except the *root* and *ſtem*, very downy and viſcid. The fruit can ſcarce be called a *ſilique*, ſince the ſeeds are nowhere affixed to the ſutures; but their *wings* indicate the genus, which might properly have been named *Pteroſpermon*: they are very hard, but encloſe a white ſweet kernel; and their light-coloured ſummits with three dark points,

give them the appearance of the winged insects. Before I saw the fruit of this lovely plant, I suspected it to be the *Bignonia Chelonoides*, which *Van Rheede* calls *Pa'dri*; and I conceived that barbarous word to be a corruption of *Pa'tali*; but the pericarp of the true *Pa'tali*, and the form of the seeds, differ so much from the *Pa'dri*, that we can hardly consider them as *varieties* of the same species; although the specific character exhibited in the Supplement to *Linnæus*, corresponds very nearly with both plants.

The *Pátali* blossoms early in the spring, before a leaf appears on the tree, but the fruit is not ripe till the following winter.

54. *'Go'cant'aca:*

Syn. Palancáshá, Icshugandhá, S'wadanshtrá, Swáducant'aca, Gôcshuraca, Vanas'rngáta.

Vulg. Gócshura, Gókyura, Culpì,

Rheede: Bahél Chulli.

Linn. Long-leaved, *Barleria?*

Cal. Perianth one-leaved, hairy, five-toothed; *upper* tooth long, incurved, pointed; two *under* and two lateral shorter, subequal, winged with sub-pellucid membranes.

Cor. One-petaled, two-lipped. *Tube* flattish, curved, protuberant at the mouth. *Upper* lip erect, two-parted, reflected at the sides, concave in the middle, enclosing the fructification. *Under* lip three-parted, reflected, with two parallel, callous, hispid bodies on the centre of its convexity; *Divisions* inverse-hearted.

Stam. Filaments four, inserted in the mouth of the tube; connected at their base, then separated into pairs, and circling round the pistil; each pair united below, consisting of a *long* and *short* filament. *Anthers* arrowed.

Pist. Germ awled, pointed, furrowed, with prominent seedlets, sitting on a glandular pedicel. *Style* thread-form, longer than the stamens, incurved above them. *Stigma* simple.

Per.

Flowers verticilled; *Corols* blue, or bright violet; centre of the *under* lip yellow. *Verticils*, each surrounded by six *thorns*, very long, diverging, coloured above; under which are the *leaves*, alike verticilled, lanced, acutely sawed, pubescent, interspersed with bristles. *Stem* jointed, flattish, hairy, reddish; furrowed on both sides; broader at the joints, or above the verticils; *furrows* alternate.

55. *Sindhuca:*

Syn. Sindhuvára, Indrasurisa, Nirvandí, Indránicà.

Vulg. Nis'andà.

Linn. Three-leaved *Vitex*, or *Negundo?*

Cal. Perianth five-toothed, beneath, permanent; *toothlets* acute, subequal.

Cor. One-petaled, grinning; *Tube* funnel-shaped, internally villous; *border* two-lipped; *upper* lip broad concave, more deeply coloured; *under* lip four cleft; *divisions* acute, similar.

Stam. Filaments four; *two* shorter, adhering to the *Tube*, villous at the base. *Anthers* half-mooned.

Pist. Germ globular; *Style* thread-form; *Stigma* two-parted, pointed, reflex.

Per. Berry (unless it be the coat of a naked seed) roundish, very hard, black, obscurely furrowed, with the calyx closely adhering.

Seeds from one to four? I never saw more than one, as *Rheede* has well described it.

Flowers raceme-panicled; purplish or dark blue without, greyish within, small. *Racemes* mostly terminal; some pedicles many flowered.

Stem diſtinctly four-ſided; *ſides* channelled, jointed, bending. *Stipules* egged, ſcaly, thickiſh, cloſe. *Branchlets* croſs-armed.

The *tube* of the corol is covered internally with a tangle of ſilvery ſilky down, exquiſitely beautiful; more denſe below the *upper* lip.

This charming ſhrub, which ſeems to delight in watery places, riſes to the height of ten or twelve, and ſometimes of twenty feet; exhibiting a moſt elegant appearance, with rich racemes or panicles lightly diſperſed on the ſummit of its branchlets. On a compariſon of two engravings in *Rumphius*, and as many in *Van Rheede*, and of the deſcriptions in both works, I am nearly perſuaded that the *Sindhuca*, or *Nirgandhì*, is the *Vitex Negundo* of *Linnæus*; but it certainly reſembles the *three-leaved Vitex* in its *leaves*, which are oppoſite, egged, acute, petioled; above moſtly *three'd*, below moſtly *fived*; paler beneath; rarely ſawed and very ſlightly, but generally entire: they are very aromatic, and pillows are ſtuffed with them, to remove a cold in the head and a headach occaſioned by it. Theſe, I preſume, are the ſhrubs which *Bontius* calls *Lagondi*, and which he ſeems to conſider as a panacea.

56. *Cáravélla:*
Syn. *Cátillaca, Suſhavì.*
Vulg. Beng *Hurhuriya*; *Hind: Carailá.*
Linn. Five-leaved *Cleome?*
Cal. *Perianth* four-leaved, gaping at the baſe, then erect; *leaflets* egg-oblong, concave, downy, deciduous.
Cor. Croſs-form. *Petals* four, expanding, *claws* long; *folds* wrinkled.
Nectary, from *ſix* to *twelve* roundiſh perforated *glands*, girding the gibbous *receptacle.*

Stam. *Filaments* ſix, thread-form, hardly differing in length, inſerted on a pedicel below the germ. *Anthers* erected, pointed, furrowed.

Piſt. *Germ* erect, linear, long, downy, ſitting on the produced pedicel. *Style* very ſhort. *Stigma* headed, flat, circular.

Per. *Silique* one-celled, two valved, ſpindle-ſhaped, with protuberant ſeeds; *crowned with the* permanent ſtyle.

Seeds very many, roundiſh, nodding. *Receptacles* linear, often more than two.

The whole plant moſt diſtinctly one piece. *Root* whitiſh, with ſcattered capillary fibres. *Stem* herbaceous, pale green, in parts purple, hairy, croſſ-armed, produced into a long *raceme* crowded at the ſummit. *Branchlets* ſimilar to the ſtem, leaf-bearing; ſimilar, but ſmaller leaves riſing alſo from their axils. *Leaves* fived, roundiſh-rhomboidal, notched, pointed, hairy, dark green, the lower pairs reſpectively equal, the odd one much larger, ſtrongly ribbed with proceſſes from the petiol-branchlets, conjoined by the baſes of the ribs, in the form of a ſtarlet; each ray whitiſh and furrowed within. *Calyx* green. *Petals* white. *Anthers* covered with gold-coloured pollen. *Pedicels* purpliſh. *Bracts* three'd, ſimilar to the cauline leaves. The ſenſible qualities of this herb ſeem to promiſe great antiſpaſmodic virtues; it has a ſcent much reſembling *aſſafœtida*, but comparatively delicate and extremely refreſhing. For pronouncing this *Cleome* the *Cáravéllá* of the ancient *Indians*, I have only the authority of *Rheede*, who has exactly written that word in *Malabar* letters. As to his *Bráhmanical* name *Tilóni*, my vocabularies have nothing more like it than *Tilaca*, to which *Cſhuraca* and *Srímat* are the only ſynonyma.

57. *Nágacésara:*
Syn. Chámpéya, Césara; Cánchana, or any other name of *gold*.
Vulg. Nagasar.
Linn. *Iron Mesua.*

To the botanical descriptions of this delightful plant, I need only add, that the tree is one of the most beautiful on earth, and that the delicious odour of its blossoms justly gives them a place in the quiver of *Cámadéva*. In the poem called *Naishadha*, there is a wild but elegant couplet, where the poet compares the white of the *Nágacésara*, from which the bees were scattering the pollen of the numerous gold-coloured anthers, to an alabaster-wheel, on which *Cáma* was whetting his arrows, while sparks of fire were dispersed in every direction. Surely, the genuine appellation of an *Indian* plant should not be substituted for the corrupted name of a *Syrian* physician, who could never have seen it: and, if any trivial name were necessary to distinguish a single species, a more absurd one than *iron* could not possibly have been selected for a flower with petals like silver and anthers like gold.

58. *S'álmali:*
Syn. *Pich'hilá. Púroni, Móchá, St'hiráyush.*
Vulg. *Semel.*
Linn. Seven-leaved *Bombax.*

59. *S'an'a:*
Syn. *S'anápushpicá, Ghant'árava.*
Vulg. *San*, pronounced *Sun*.
Linn. Rushy *Crotalaria.*
Cal. *Perianth* one-leaved, villous, permanent; short below, gibbous on both sides, with minute linear tracts. *Upper teeth* two, lanced, pressing the banner; *lower* tooth boat-form, concave, two-gashed

in the middle, cohering above and below, ſheathing the keel, rather ſhorter than it; pointed.

Cor. Boat-form.

Banner broad, large, acute, rather hearted, with two dark calloſities at the baſe, and with compreſſed ſides, moſtly involving the other parts: a dark line from baſe to point.

Wings inverſe-egg-oblong, with dark callous bodies at their axils, two-thirds of the banner in length.

Keel flattened at the point, nearly cloſed all round to include the fructification; very gibbous below, to receive the germ.

Stam. Filaments ten, coaleſced, cleft behind, two-parted below; alternately ſhort with linear furrowed erect, and long with roundiſh *anthers*.

Piſt. Germ rather awled, flat, villous, at a right angle with the aſcending, cylindric, downy *Style*. *Stigma* pubeſcent, concave, open, ſomewhat lipped.

Per. Legume pedicelled, ſhort, velvety, turgid, one-celled, two-valved.

Seeds, from one or two to twelve or more, round kidney-form, compreſſed.

Flowers deep yellow. *Leaves* alternate, lanced, paler beneath, keeled; *petioles* very ſhort; *ſtipules* minute, roundiſh, villous. *Stem* ſtriated.

Threads, called *pavitraca*, from their ſuppoſed *purity*, have been made of *Sana* from time immemorial: they are mentioned in the laws of *Menu*.

The *retuſe-leaved Crotalaria*, which *Van Rheede* by miſtake calls *Schama Puſpi*, is cultivated, I believe, for the ſame purpoſe. *Rumphius* had been truly informed that threads for nets were made from this genus in *Bengal*; but he ſuſpected the information to be erroneous, and thought that the perſons who conveyed it had confounded the *Crotalaria* with the *Capſular Corchorus*. Strong ropes and canvas are made of its macerated bark.

The *Jángals'an*, or a variety of the *watery Crotalaria*, has very beautiful flowers, with a greenifh white banner, purple ftriped, wings bright violet: *ftem* four-angled and four-winged; *leaves* egged, obtufe, acute at the bafe, curled at the edges, downy; *ftipules* two, declining, mooned, if you chufe to call them fo, but irregular, and acutely pointed. In all the *Indian* fpecies, a difference of foil and culture occafion varieties in the flower and fructification.

60. *Jayantí:*
Syn. Jayá, Tercárì, Nádéyì, Vaïjayruticá.
Vulg. Jainti, Jáhì; fome fay, *Arani.*
Rheede: Kedangu.
Linn. Æfchynomene Sefban.
Cal. Perianth one-leaved, rather belled, five-cleft; *toothlets* awled, erect, fub-equal, more diftant on each fide of the awning; permanent.
Cor. Boat-form.
Awning very broad, rather longer than the wings, inverfe-hearted, quite reflected fo as to touch the calyx: waved on the margin; furrowed at the bafe internally, with two converging hornlets fronting the aperture of the keel, gibbous below, awled upwards, acute, erect, within the wings. *Wings* oblong, clawed, narrower above, obtufe, fpurred below, embracing the keel and the hornlets of the awning.
Keel compreffed, enclofing the fructification, inflected nearly in a right angle, gafhed below and above the flexure; each divifion hatchet-form; beautifully ftriated.
Stam. Filaments fimple and nine-cleft, inflected like the keel; the *fimple* one curved at the bafe. *Anthers* oblong, roundifh.
Pift. Germ compreffed, linear, erect as high as the

flexure of the filaments with viſible partitions. *Style* nearly at a right angle with the germ, awled, inflected like the ſtamen. *Stigma* rather headed, ſomewhat cleft, pellucid.

Per. *Legume* very long, ſlender, wreathed when ripe, ſmooth at the valves, but with ſeeds rather protuberant, many-parted, terminated with a hard ſharp point.

Seeds oblong, rather kidney-ſhaped, ſmooth, ſlightly affixed to the ſuture, ſolitary.

Stem arboreſcent, rather knotty. *Leaves* feathered, pairs from nine to fifteen, or more, often alternate; *leaflets* oblong, end-nicked, ſome with an acute point, dark green above, paler beneath, with a gibboſity at the inſertion of the petiols; ſleeping, or collapſing, towards night. *Racemes* axillary; *pedicels* with a double curvature or line of beauty; *flowers* ſmall, ſix or ſeven; varying in colour; in ſome plants, wholly yellow; in others, with a blackiſh-purple awning yellow within, and dark yellow wings tipped with brown; in ſome with an *awning* of the richeſt orange-ſcarlet externally, and internally of a bright yellow; *wings* yellow, of different ſhades; and a keel pale below, with an exquiſite changeable light purple above, ſtriated in elegant curves. The whole plant is enexpreſſibly beautiful, eſpecially in the colour of the buds and leaves, and the grace of all the curves, for there is no proper angle in any part of it. The *Bráhmens* hold it ſacred: *Van Rheede* ſays, that they call it *Cananga*; but I never met with that word in *Sanſcrit:* it has parts like an *Hedyſarum*, and the air of *Cytiſus*.

61. *Paláſa:*
Syn. *Sins'uca*, *Parna*, *Vátápot'ha*.
Vulg. *Pálas Plás Dhác*.
Koen. *Butea* frondoſa.

Cal. Perianth belled, two-lipped *upper* lip broader, obſcurely end nicked; *under* lip three-cleft, downy; permanent.

Cor. Boat-form.

Awning reflected, hearted, downy beneath; ſometimes pointed.

Wings lanced, aſcending, narrower than the keel.

Keel as long as the wings, two-parted below, half-mooned, aſcending.

Stam. Filaments nine and one, aſcending, regularly curved. *Anthers* linear, erect.

Piſt. Germ pedicelled, oblongiſh, downy.

Style awled, about as long as the ſtamens. *Stigma* ſmall, minutely cleft.

Per. Legume pedicelled, oblong, compreſſed, depending.

Seed one, toward the apex of the pericarp flat, ſmooth, oval-roundiſh.

Flowers raceme-faſcicled, large, red, or *French* ſcarlet, ſilvered with down.

Leaves three'd, petioled; *leaflets* entire, ſtipuled, large, rhomboïdal; the *lateral* ones unequally divided; the *terminal* one larger, equally biſſected, brightly verdant. A *perfect* deſcription of the *arboreſcent* and the *twining Paláſa* has been exhibited in the laſt volume, with a full account of its beautiful red *gum*; but the ſame plant is here ſhortly deſcribed from the life, becauſe few trees are conſidered by the *Hindus* as more venerable and holy. The *Paláſa* is named with honour in the *Védas*, in the laws of *Menu*, and in *Sanſcrit* poems, both ſacred and popular; it gave its name to the memorable *plain* called *Pláſſey* by the vulgar, but properly *Paláſi*; and, on every account, it muſt be hoped that this noble plant will retain its ancient and claſſical appellation. A grove of *Paláſas* was formerly the principal ornament of *Criſhna-nagar*, where we ſtill ſee the

trunk of an aged tree near ſix feet in circumference. This genus, as far as we can judge from written deſcriptions, ſeems allied to the *Niſſolia.*

62. *Caranjaca:*
Syn. Chirabilva, Nactamála Caraja.
Vulg. Caranja.
Rheede. Caranſchi, 6 H. M. tab. 3.
Cal. Perianth one-leaved, cup-form, obſcurely five-toothed, or ſcalloped, beaked.
Cor. Boat-form.
Awning broad, end-nicked, ſtriated, rather ſpirally inflected, with two calloſities at its baſe.
Wings oblong, of the ſame length with the awning.
Keel rather ſhorter, gibbous below, two-parted.
Stam. Filaments nine in one body, gaping at the baſe, and diſcovering a tenth cloſe to the ſtyle. *Anthers* egged, erect.
Piſt. Germ above, oblong, downy. *Style* incurved at the top. *Stigma* rather headed.
Per. Legume moſtly one-ſeeded, thick, rounded above, flattiſh, beaked below.
Seed oblong-roundiſh, rather kidney-form.
Racemes axillary. *Awning* pale; *wings* violet. *Leaves* feathered with an odd one, moſtly two-paired; *leaflets* egg-oblong, pointed, keeled, ſhort petioled; browniſh on one ſide, pale on the other. *Common petiol* gibbous at its baſe. The *ſeed* yields an oil ſuppoſed to be a cure for the moſt inveterate ſcabies.

63. *Arjuna:*
Syn. Nadiſarja, Virataru, Indradru, Cacubha.
Vulg. Jaral.
Rheede. Adamboe; 4 H. M. *tab.* 20, 21, 22.
Linn. Beautiful Munchhauſia?
Koen. Queen's Flower Lagerſtroemia?
Cal. Perianth one-leaved, ſix-cleft, top-ſhaped, fur-

rowed with protuberant ridges, downy, permanent; *diviſions* coloured, with points reflected.

Cor. *Petals* ſix, roundiſh, ſomewhat notched, expanding, wavy; *claws* ſhort, inſerted in the calyx.

Stam. *Filaments* coloured, numerous, capillary, ſhortiſh, obſcurely conjoined in ſix parcels, one to each *diviſion* of the calyx: *anthers* thick, incumbent, roundiſh, kidney-ſhaped.

Piſt. *Germ* above, egged. *Style* coloured, longiſh, thread-form, incurved. *Stigma* obtuſe.

Per. *Capſule* egged, ſix-celled, ſix-valved.

Seeds numerous.

Panicles racemed, terminal, erect. *Flowers* violet or light purple, in the higheſt degree beautiful. *Leaves* alternate, leathery, ſome oppoſite, egg-oblong, ſtipuled, moſt entire, ſhort petioled, ſmooth, paler beneath. *Branches* round and ſmooth. I have ſeen a ſingle panicle waving near the ſummit of the tree, covered with bloſſoms, and as large as a milk-maid's garland. The *timber* is uſed for the building of ſmall boats.

64. *Vandá:*

Syn. *Vricſhádanì*, *Vricſharhua*, *Jìvanticá.*

Vulg. *Bándà*, *Perſárà*, *Peraſárà.*

Theſe names, like the *Linnæan*, are applicable to all *paraſite*-plants.

Linn. Retuſe-leaved *Epidendrum?*

Cal. *Spathes* minute, ſtraggling.

Cor. *Petals* five, diverging, oval-oblong, obtuſe, wavy; the two loweſt larger; the three higheſt equal, bent towards the nectary.

Nectary central, rigid: *mouth* gaping, oblique: *Upper lip* ſhorter, three-parted, with a poliſhed honey-cup; *under lip* concave in the middle, keeled above, with two ſmaller cavities below, two proceſſes at the *baſe*, incurved, hollow, oval-pointed, converging, honey-bearing.

Stam. *Filaments* very ſhort. *Anthers* round, flattiſh, margined, covered with a lid, eaſily deciduous from the *upper* lip of the nectary.

Piſt. *Germ* beneath long, ribbed, contorted with curves of oppoſite flexure. *Style* very ſhort, adhering to the *upper* lip. *Stigma* ſimple.

Per. *Capſule* oblong-conic, wreathed, ſix-keeled, each with two ſmaller keels, three-celled, crowned with the dry corol.

Seeds innumerable, like fine duſt, affixed to the *receptacle* with extremely fine hairs, which become thick wool.

Scapes incurved, ſolitary, from the cavity of the leaf, at moſt ſeven-flowered; pedicels alternate. *Petals* milk-white externally, tranſparent; brown within, yellow-ſpotted. *Upper* lip of the nectary ſnow-white; *under* lip rich purple, or light crimſon, ſtriated at the baſe, with a bright yellow gland, as it ſeems, on each proceſs. The flowers gratefully fragrant and exquiſitely beautiful, looking as if compoſed of ſhells, or made of enamel; criſp elaſtic, viſcid internally. *Leaves* ſheathing, oppoſite, equally curved, rather fleſhy, ſword-form, retuſe in two ways at the ſummit, with one acute point. *Roots* fibrous, ſmooth, flexible; ſhooting even from the top of the leaves. This lovely plant attaches itſelf chiefly to the higheſt *Amras* and *Bilvas*; but it is an air-plant, and lives in a pot without earth or water: its leaves are excavated upwards, to catch and retain dew. It moſt reſembles the firſt and ſecond *Maravaras* of *Van Rheede* in its roots, leaves, and fruit; but rather differs from them in its infloreſcence. Since the paraſites are diſtinguiſhed by the trees on which they moſt commonly grow, this may in *Sanſcrit* be called *Amaravandà*; and the name *Baculavandà* ſhould be applied to the *Loranthus*; while the *Viſcum* of the oak, I am told, is named *Vandà* ſim-

ply and tranſcendantly, the *Vandáca*, or oak, being held ſacred.

65. *A'malací:*
Syn. Tiſhyap'halá, Amrita', Vayaſt'há.
Vulg.
Linn. Phyllanthus Emblicá.

66. *Gajapippalí:*
Syn. Caripippalí, Capiballi, Colaballi, Sreyas'í, Vas'ira. Some add, *Chavicá*, or *Chavya*; but that is named in the *Amaracóſh* as a diſtinct plant, vulgarly *Chava*, or *Chayi.*
Vulg. Pippal-j'hanca, Maidah.

MALE FLOWERS.

Cal. Common Perianth four-leaved; *leaflets* roundiſh, concave; the two exterior, oppoſite, ſmaller, containing from *eight* to *fourteen* florets. *Partial calyx*, none.
Cor. None. *Nectary*, many yellow glands on the pedicel of the filaments.
Stam. Filaments from eight to eighteen in each floret, connected by a ſhort villous pedicel, threadform, very hairy. *Anthers* large netted, irregular, inflated, containing the pollen.
Piſt. Rudiments of a *germ* and *ſtyle* withering.

FEMALE FLOWERS.

Cal. Common Perianth as in the male, but ſmaller; containing from ten to twelve florets.
Partial calyx none, unleſs you aſſume the corol. *Cor.* many-petaled, belled. *Petals* erect lance-linear, fleſhy, covered within, and externally with white hairs. *Nectary*, yellow glands ſprinkling the receptacle.

Pist. *Germ* oval. *Style* cylindric, curved at the base. *Stigma* headed.

Per. *Berry* globular, one-seeded.

Seed spherical, smooth.

Flowers umbelled, yellow from their anthers. *Leaves* mostly oblong-lanced, but remarkably varying in shape, alternate. Both flowers and fruit have an agreeable scent of lemon-peel; and the berries, as a native gardener informs me, are used as a spice or condiment. It was from him that I learned the *Sanscrit* name of the plant; but as *ballì* means a *creeper*, and as the *Pippal-jhanca*, is a tree perfectly able to stand without support, I suspect in some degree the accuracy of his information; though I cannot account for his using a *Sanscrit* word without being led to it, unless he had acquired at least traditional knowledge. It might be referred, from the imperfect mixed flower, to the twenty-third class.

67. *Sácótáca:*

Syn.

Vulg. *Sy'ura*, or *Syaura.*

Koen. *Rough-leaved*, *Trophis ?*

MALE.

Cal. *Common* imbricated; *leaflets* six or eight, egged, acute, small, expanding, withering, containing generally from five to seven flowerets. *Partial* four-parted; *divisions* egged, expanded, villous.

Cor. None, unless you assume the calyx.

Stam. *Filaments* mostly four (in some, three; in one, five) awled, fleshy, rather compressed, spreading over the divisions of the calyx, and adhering to them at the point. *Anthers* double, folded.

The *buds* elastic, springing open on a touch.

FEMALE.

Cal. Four-parted: *diviſions* egged, concave, pointed, permanent, propped by two ſmall *bracts*; unleſs you call them the calyx.

Cor. None; unleſs you give the *calyx* that name.

Piſt. *Germ* roundiſh. *Style* very ſhort, cylindric. *Stigma* long, two-parted, permanent.

Per. *Berry* one-ſeeded, navelled, ſmooth, ſomewhat flattened.

Seed globular, arilled.

Leaves various, ſome inverſe-egged, ſome oblong, ſome oval, pointed, irregularly notched, alternate (ſome oppoſite) crowded, criſp, very rough veined, and paler beneath, ſmoother and dark above. *Berry*, deep yellow. The *Pandits* having only obſerved the *male* plant, inſiſt that it bears no fruit. *Female* flowers axillary, from one to four or five in an axil.

68. *Virana*:
Syn. *Viratara.*
Vulg. *Béná Gándár Cata.*
Retz. *Muricated Andropogon.*
Roxb. *Aromatic Andropogon.*

The root of this uſeful plant, which *Cálidás* calls *Us'íra*, has nine other names, thus arranged in a *Sanſcrit* verſe:

Abhaya, Nalada, Sévya Amrinála, Jalás'aya,
Lámajjaca, Laghulaya, Avadá'ha, Iſhtacápat'ha.

It will be ſufficient to remark, that *Jálas'aya* means *aquatic*, and that *Avadáha* implies a power of *allaying feveriſh heat*; for which purpoſe the root was brought by *Gautamí* to her pupil *Sacontalá*. The ſlender

fibres of it, which we know here by the name of *C'has* or *Khaskas*, are moſt agreeably aromatic when tolerably freſh; and, among the innocent luxuries of this climate, we may aſſign the firſt rank to the coolneſs and fragrance which the large hurdles or ſcreens in which they are interwoven, impart to the hotteſt air, by the means of water daſhed through them; while the ſtrong ſouthern winds ſpreads the ſcent before it, and the quick evaporation contributes to cool the atmoſphere. Having never ſeen the freſh plant, I gueſſed, from the *name* in *Van Rheede* and from the *thin roots*, that it was the *Aſiatic Acarus:* but a drawing of Dr. *Roxburgh*'s has convinced me that I was miſtaken.

69. *S'amí.*
Syn. Saćtu-p'halá', S'ivá.
Vulg. Sa'ën, Ba'bul.
Linn. Farneſian Mimoſa.

Thorns double, white, black pointed, ſtipular. *Leaves* twice feathered; firſt, in three or four pairs, then in pairs from fourteen to ſixteen. *Spikes* globular, with ſhort peduncles; *yellow*, perfuming the woods and roads with a rich aromatic odour. A minute *gland* on the petiols below the leaflets. *Wood* extremely hard, uſed by the *Bra'hmens* to kindle their ſacred fire, by rubbing two pieces of it together, when it is of a proper age and ſufficiently dried. *Gum* ſemi-pellucid. *Legumes* rather ſpindle-ſhaped, but irregular, curved, acutely pointed, or daggered, with twelve or fourteen ſeeds rather prominent, gummy within. *Seeds* roundiſh, compreſſed. The gum of this valuable plant is more tranſparent than that of the *Nilotic* or *Arabian* ſpecies; which the *Arabs* call *Ummu'lghíla'n*, or Mother of Serpents; and the *Perſians*, by an eaſy corruption, *Mughílàn.*

Samíra means a ſmall *Samì*; but I cannot learn to what ſpecies that diminutive form is applied.

Lajja'ru (properly *Lajja'lu*) ſignifies *baſhful*, or *ſenſitive*, and appears to be the word engraved on a plate in the *Malabar* Garden; though *Van Rheede* pronounces it *Lauri*. There can be no doubt that it is the *ſwimming Mimoſa*, with *ſenſitive* leaves, root incloſed in a ſpungy cylinder, and flowerets with only ten filaments. *Linnæus*, by a mere ſlip, has referred to this plant as his *Dwarf Æſchynomene*; which we frequently meet with in *India*.—See 9 H. M. tab. 20. The epithet *Lajja'lu* is given by the *Pandits* to the *Modeſt Mimoſa*.

70. *Chandraca:*

Syn. *Chandrapuſhpa.*

Vulg. *Ch'hóta Cha'nd*, or *Moonlet.*

Rheede: *Sjouanna Amelpodi*, 6 H. M. t. 47.

Linn. *Serpent Ophioxylum.*

Cal. *Perianth* five-parted, ſmall, coloured, erect, permanent; *diviſions* egged, acutiſh.

Cor. *Petal*, one. *Tube* very long in proportion; jointed near the middle, gibbous from the encloſed anthers; above them, rather funnel-form. *Border* five-parted; *diviſions* inverſe-egged, wreathed.

Piſt. *Germ* above, roundiſh. *Style* thread-form. *Stigma* irregularly headed; with a circular pellucid baſe, or *nectary*, extremely viſcid.

Per. *Berry* moſtly twined, often ſingle, roundiſh, ſmooth, minutely pointed, one-ſeeded.

Seed on one ſide flattiſh, or concave; on the other, convex.

Flowers faſcicled. *Bracts* minute, egged, pointed, coloured. *Tube* of the corol light purple; *border* ſmall, milk-white. *Calyx*, firſt pale pink, then bright carmine. *Petiols* narrow-winged. *Leaves*

oblong-oval; pointed, nerved, dark and gloſſy above, moſtly three-fold, ſometimes paired, often four-fold near the ſummit; *margins* wavy. Few ſhrubs in the world are more elegant than the *Chandra*, eſpecially when the vivid carmine of the *perianth* is contraſted not only with the milk-white corol, but with the rich green *berries*, which at the ſame time embelliſh the faſcicle: the mature berries are black, and their pulp light purple. The *Bengal* peaſants aſſure me, as the natives of *Malabar* had informed *Rheede*, that the *root* of this plant ſeldom fails to cure animals bitten by ſnakes, or ſtung by ſcorpions; and, if it be the plant, ſuppoſed to aſſiſt the *Nacula*, or *Viverra Ichneumon*, in his battles with ſerpents, its *nine* ſynonyma have been ſtrung together in the following diſtich:

Náculí, Suraſá, Ráſná, Sugandá Gandhanáculí
Náçuléſhtá, Bhujangácſhí, Ch'hatricá, Suvaha, nava.

The vulgar name, however, of the ichneumon-plant is *Ráſan*; and its fourth *Sanſcrit* appellation ſignifies *well-ſcented*: a quality which an ichneumon alone could apply to the *Ophioxylum*; ſince it has a ſtrong, and rather fœtid odour. The *fifth* and *ſixth* epithets, indeed, ſeem to imply that its ſcent is agreeable to the *Nacula*; and the *ſeventh* (according to the comment on the *Amaracóſh*) that it is offenſive to ſnakes. It is aſſerted by ſome, that the *Ráſan* is no other than the Rough *Indian Achyranthes*; and by others, that it is one of the *Indian Ariſtólochias*. From reſpect to *Linnæus*, I leave this genus in his mixed claſs; but neither my eyes, nor far better eyes than mine, have been able to diſcover its *male* flowers; and it muſt be confeſſed, that all the deſcriptions of the *Ophyoxylum*, by *Rum-*

phius, *Burman*, and the great botaniſt himſelf, abound with erroneous references, and unaccountable overſights.

71. *Pippala:*
Syn. *Bódhi-druma*, *Chala-dala*, *Cunjarás'anas*, *Anwat'ha.*
Vulg. *Pippal.*
Linn. *Holy Ficus:* but the three following are alſo thought *holy*. *Fruit* ſmall, round, axillary, ſeſſile, moſtly twin. *Leaves* hearted, ſcalloped, gloſſy, daggered; *petiols* very long; whence it is called *Chaladala*, or the tree *with tremulous leaves*.

72. *Udumbara:*
Syn. *Jantu-p'hala*, *Yajnyánga*, *Hémadugdhaca.*
Vulg. *Dumbar.*
Linn. *Racemed Ficus.*
Fruit peduncled, top-ſhape, navelled, racemed.
Leaves egg-oblong, pointed, ſome hearted, obſcurely ſawed, veined, rough above, netted beneath. *Van Rheede* has changed the *Sanſcrit* name into *Roembadoe*. It is true, as he ſays, that minute *ants* are hatched in the ripe fruit, whence it is named *Jantu-p'hala*; and the *Pandits* compare it to the *Mundane* Egg.

73. *Placſha:*
Syn. *Jati*, *Parcatí.*
Vulg. *Pácari*, *Pácar.*
Linn. *Indian Ficus* citron-leaved; but all four are *Indian.*
Fruit ſeſſile, ſmall, moſtly twin, crowded, whitiſh.
Leaves oblong, hearted, pointed, with very long ſlender petiols.

74. *Vata:*
Syn. *Nyagródha*, *Bahupat.*

Vulg. Ber.
Linn. *Bengal Ficus*; but all are found in this province, and none peculiar to it.
Fruit roundiſh, blood-red, navelled, moſtly twin, ſeſſile. *Calyx* three-leaved, imbricated.
Leaves ſome hearted, moſtly egged, obtuſe, broadiſh, moſt entire, *petiols* thick, ſhort, branches radicating.

The *Sanſcrit* name is given alſo to the *very large Ficus India*, with radicating branches, and to ſome other varieties of that ſpecies. *Van Rheede* has by miſtake transferred the name *Aswatt'ha* to the *Placſha*, which is never ſo called.

75. *Caraca:*
Syn. *Bhauma, Ch'hatra'ca.*
Vulg.
Linn. *Fungus Agaric.*

This and the *Phallus* are the only fungi which I have yet ſeen in *India*: the ancient *Hindus* held the fungus in ſuch deteſtation, that *Yama*, a legiſlator, ſuppoſed now to be the judge of departed ſpirits, declares " thoſe who eat muſhrooms, whether ſpring-" ing from the ground or growing on a tree, fully " equal in guilt to the ſlayers of *Bra'hmens*, and the " moſt deſpicable of all deadly ſinners."

76. *Ta'la:*
Syn. *Trinrajan.*
Vulg. *Tal, Palmeira.*
Linn. *Boraſſus.*

This magnificent palm is juſtly entitled the King of its order, which the *Hindus* call *trina druma*, or graſs-trees. *Van Rheede* mentions the bluiſh gelatinous, pellucid ſubſtance of the young *ſeeds*, which,

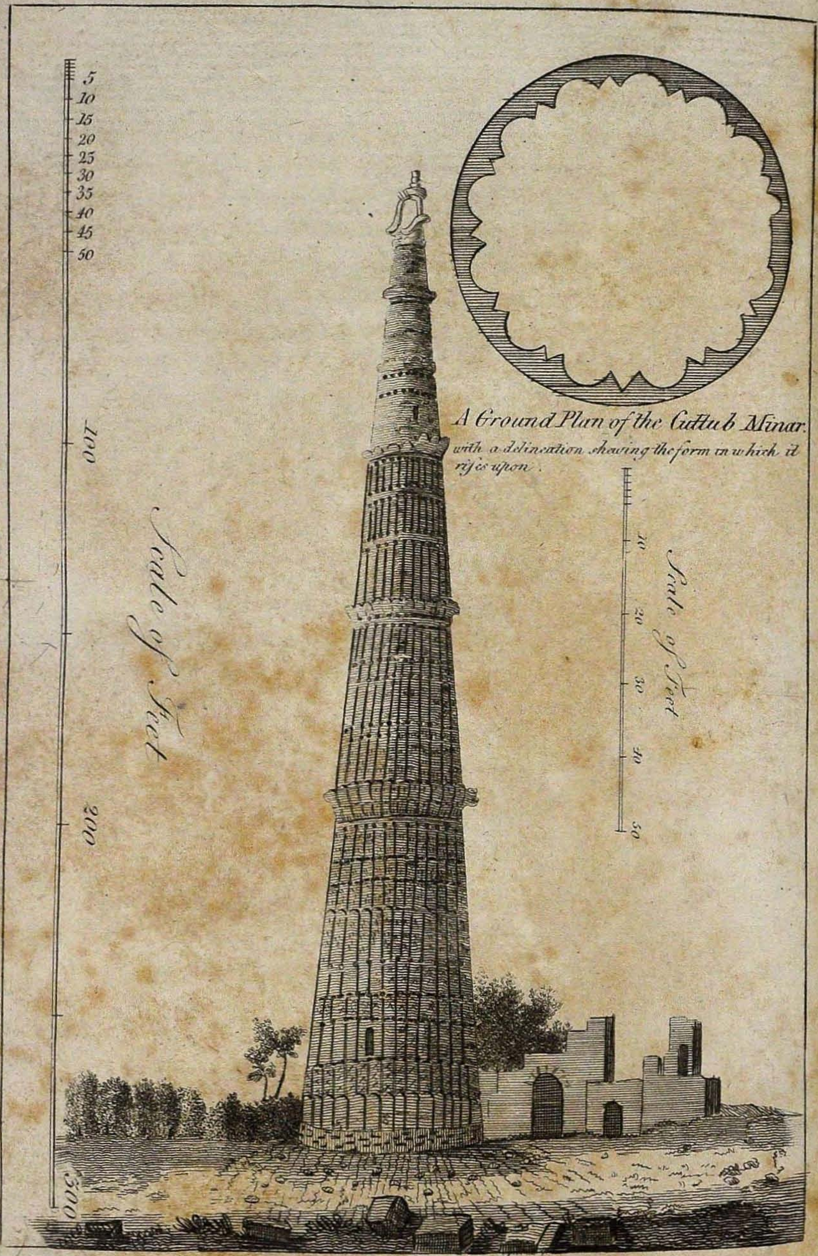
in the hot ſeaſon is cooling, and agreeable to the taſte; but the liquor extracted from the tree is the moſt ſeducing and pernicious of intoxicating vegetable juices: when juſt drawn, it is as pleaſant as *Poubon* water freſh from the ſpring, and almoſt equal to the beſt mild *Champaigne*. From this liquor, according to *Rheede*, ſugar is extracted; and it would be happy for theſe provinces, if it were always applied to ſo innocent a purpoſe.

77. *Na'ricéla:*
Syn. La'ngalin.
Vulg. Na'rgíl, Na'rjíl.
Linn. Nut-bearing Cocos.

Of a palm ſo well known to *Europeans*, little more need be mentioned than the true *Aſiatic* name: the water of the young fruit is neither ſo copious, nor ſo tranſparent and refreſhing in *Bengal* as in the iſle of *Hinzuan*, where the natives, who uſe the unripe nuts in their cookery, take extreme care of the trees.

78. *Guva'ca:*
Syn. Ghónt'há', Púga, Cramuca, Capura.
Vulg. Supya'ri.
Linn. Areca Catechu.

The trivial name of this beautiful palm having been occaſioned by a groſs error, it muſt neceſſarily be changed; and *Guva'ca* ſhould be ſubſtituted in its place. The inſpiſſated juice of the *Mimoſa C'hadira* being vulgarly known by the name of *Cat'h*, that vulgar name has been changed by *Europeans* into *Catechu*; and becauſe it is chewed with thin ſlices of the *Udvéga*, or *Areca-nut*, a ſpecies of this palm has been diſtinguiſhed by the ſame ridiculous corruption.



Cuttub Minar in April 1794.

MAHARAJA ... TANJORE ... MAHAL

A DESCRIPTION OF THE CUTTUB MINAR.

BY ENSIGN JAMES T. BLUNT,
OF THE ENGINEERS.

THE base of the *Cuttub Minar* is a polygon of twenty-seven sides, and rises upon it in a circular form; the diminution of the column is in a good proportion. I do not mean to infer, that the architect has followed any established rule, for it does not appear that the antients, in any country, were tied down to rule; for although we see extremely different instances of the diminution in their works, in general they all look well.

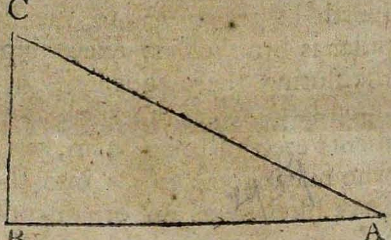
The exterior part of the *Minar* is fluted into twenty-seven semicircular and angular divisions, upon which is written a good deal of a very ancient *Arabic* character; it is supposed to contain passages from the *Koran*; there are four balconies in the height of the building, the first is at the height of ninety feet, the second at 140, the third at 180, and the fourth at 203 feet; to the height of 180 feet, the pillar is built of an exceeding fine red granite, and the fluting there ends. The balconies are supported upon large stone brackets, and have had small battlements erected upon them, as a preventive from people who may choose to go into them, from falling; and serve likewise as an ornamental purpose to the build-

ing; from the height of 203 feet, excepting a few inconſiderable ornaments, it riſes with an even ſurface, and circular form, built of very fine white marble; upon which the date when the *Minar* was completed is ſaid to be written. It was a matter of much diſappointment that I could not approaeh ſufficiently near to the date to copy it; for I found it was ſituated at ſuch a height, as to put it totally out of my power; and what adds to the difficulty is, that there is not a bamboo, or wood of any kind produced in that part of the country, calculated to raiſe a ſcaffolding with.

An irregular ſpiral ſtair-caſe leads from the bottom to the ſummit of the *Minar*, which is crowned with a majeſtic cupola of red granite; there are many openings during the aſcent, for the admiſſion of light and air; at each balcony, an opening to allow of people walking into them; but I found the battlements in many parts entirely ruined, and thoſe that were ſtanding, in ſuch a decayed ſtate as to render it a matter of ſome danger to venture out from the ſtair-caſe.

The entire height of the *Cuttub Minar* is 242 feet and ſix inches: I aſcertained it by meaſuring a direct line from its baſe; and, as it may be a matter of ſome ſatisfaction to ſee that it is done with preciſion, I annex the trigonometrical calculation.

The Baſe A B being meaſured in a right line from the bottom of the *Minar*, was found to be 402 feet and ſix inches, twenty-four feet one inch, the ſemi-diameter of the baſe of the *Minar* being added to it,



gave a line of 426 feet and ſeven inches from the centre of the pillar. At the extremity of the baſe A, a theodolite was placed, and previouſly being carefully adjuſted, by putting the line of collimation in the teleſcope, parallel to the plane of the horizon, the angle B A C was obſerved to be twenty-nine degrees, thirty-nine minutes; thence the height of the *Cuttub Minar*, was found to be 242 feet and nearly ſix inches.

By Plane Trigonometry.

The Baſe A B giving 426 feet, ſeven inches, ſay 426, 5, the angle B A C is given 29°, 39′, the angle B A C is a right one; the ſum of the angles in all tringles being equal to two right angles, or 180 degrees, by deducting the ſum of the two angles C A B and A B C, from the ſum of three angles in the triangle A B C, the angle A C B will be found

C A B = 29. 39
A B C = 90. —

180—119. 39 = 60. 21 = angle A C B.

Then as the angle A C B is to the ſide A B, ſo is the angle C A B to the ſide C B, or height of the *Minar*.

Log. S. of ACB		Log. of AB		Log. S. of CAB		Log. of CB
9,93905	:	62942	::	9, 69434	:	242,5
				+2, 62942		
				10, 32376		
				-9, 93905 feet.		
				2, 38471 = 242, 5		

The *Cuttub Minar* is ſituated about nine miles bearing S. 16 W. from the *Jumma Musjid*, that was erected by the Emperor *Shaw Jehan* in the preſent city of *Delhi*, and appears to have been deſigned for a *Minaret* to a moſt ſtupendous moſque, which never was completed; a conſiderable part of the ſecond and correſponding *Minaret* is to be ſeen, and many other parts of this intended immenſe building, particularly of the arches. The moſque ſeems to have been abandoned in this unfiniſhed ſtate, from cauſes at this time entirely unknown; perhaps the original deſigner of the fabric found human life too ſhort to ſee it accompliſhed during his exiſtence. It may not appear a matter of much ſurprize that the wealth of one man ſhould be found inadequate to ſo arduous an undertaking, however opulent and exalted in life his ſituation may have been. The tomb of *Cuttub Shaw*, at whoſe expence the *Minar* is ſaid to have been built, is to be ſeen a few hundred yards to the weſtward of it: the tomb is rather inconſiderable and of mean appearance, when compared with the many more magnificent mauſoleums that are to be met with in the extenſive ruins of *Delhi*.

Cuttub Shaw came to the throne of *Delhi* in the *Muſſulman* year 602, correſponding with the *Chriſtian* æra 1205, and died in the *Muſſulman* year 607, or *Chriſtian* æra 1210, a reign of only five years; and certainly a period not ſufficient to erect ſo large a building as a moſque, to correſpond in magnitude and grandeur with the *Minar* and other parts of the ſtructure that were began upon, adjoining to it.

I think it may with ſome degree of reaſon be inferred that a ſtop was put to the building of the moſque at the deceaſe of *Cuttub Shaw*, and from which period we may date the *Minar* to have been completed; conformably with this inference, it is aſ-

certained that the *Minar* has ſtood at leaſt 580 years. Excepting the unavoidable and irreſiſtible effects of lightning, from the goodneſs of the materials, and the excellent judgment with which they appear to have been put together, there is every reaſon to ſuppoſe it would have withſtood the ravages of time, for ſucceeding generations to behold with admiration and aſtoniſhment, for yet many ages.

XIX.

ASTRONOMICAL OBSERVATIONS

MADE ON

A VOYAGE

TO THE

ANDAMAN AND NICOBAR ISLANDS,

BY LIEUT. R. H. COLEBROOKE.

Diamond Island, near Cape Negrais, 1789.

DECEMBER 14th. By the sun's meridian altitude taken on shore	—	*Lat.* 15° 49′ 33″
By Captain *Kyd*	—	15 49 43
	Mean	15 49 38

Carnicobar Island, 1790. *On board the Atalanta Sloop of War, about one mile from the western shore.*

January 2d, Sun's meridian altitude 57° 44′ 40″ *Lat.* 9° 8′ 52″.

BEARINGS.

Nothernmost point of the land	—	N. 16° E.
Southernmost point of do.	—	S. 21 E.
Nearest shore	— —	N. 70 E.

Danish Point, at Nancowry, 1790. *Observations for the Latitude, taken near the Flag Staff.*

	Sun or Stars.	Doub. Mer. Alts.	Latitude N.
Jan. 11	Capella —	104° 33′ 0″	8° 1′ 51″
	Canopus —	58 48 0	8 2 17
20	α Persei —	97 54 30	8 2 31
21	Sun's lower limb	123 42 0	8 2 27
	Capella —	104 34 30	8 2 36
	β Aurigæ —	106 18 10	8 2 49
23	Capella —	104 34 20	8 2 35
	β Aurigæ —	106 17 30	8 2 29
		Mean of the whole	8 2 26, 8

If the first observation by Capella be rejected, the mean of the remaining seven will be 8° 2′ 32″.

The observations were made with a fine sextant by *Troughton*, and artificial horizon. The refractions applied in computing these, and all the following observations, were taken from Monsieur *Le Gentil*'s table, published in his *Voyage dans les Mers de L'Inde.* The declinations of the stars were taken from table 7th of the requisite tables, and partly from *Dun*'s catalogue.

Observations for Longitude, by the Eclipses of Jupiter's Satellites.

Apparent time 1790.		Satell.	Weather.	Im. or Em.	Longit. in time.	Longit. in deg.
	d.	h. ′ ″				h. ′ ″	° ′ ″
January	11	12 17 44	1	Clear,	Imm.	6 13 25	93 21 15
	20	8 36 51	1	Do.	Imm.	6 13 27	93 21 45
	23	11 5 12	2	Do.	Imm.	6 13 26	93 21 30

Mean Longitude of *Danish* Point, East from *Greenwich* 93 21 30

The Telescope was a refractor, magnifying from 80 to 90 times.

Pumbank Island, on board the Experiment Cutter. The Southern extremity of the Island bearing East.

February 10th, Sun's meridian altitude — 67° 18′ 30″
Do. by Capt. *Kyd* — 67 18 0

Mean 67 18 15 *Latitude* 8° 13′ 1″

CARNICOBAR ISLAND.

February 15.

Sun's meridian altitude 68° 5′ 30″ *Lat.* 9° 5′ 31″. The ſouthernmoſt point of the iſland bore E. ½ S. 1 mile diſtant.

February 16.

Sun's meridian altitude 68° 26′ 15″
Do. by Capt. *Kyd* - 68 26 30

Mean 68 68 22 *Lat.* 9° 6′ 24″

Southernmoſt point of the iſland bore W ¼ S 1 ¼ mile diſtant.

Chatham Iſland in Port Cornwallis *, *at the Great Andaman*, 1790.

OBSERVATIONS FOR LATITUDE.

Date.	Names of Stars.	D. Alts. on Mer.	Latitude.
Feb. 23	Canopus —	51 31 0	11 41 0
24	β Aurigæ —	113 36 30	11 42 5
	α Urſæ Majoris	77 40 0	11 41 40
26	β Aurigæ —	113 36 0	11 41 50
	ε Canis Majoris	99 15 0	11 41 23
	δ Canis Majoris	104 31 0	11 40 49
28	β Aurigæ —	113 36 20	11 42 0
	Canopus —	51 31 10	11 40 55
March 2	ε Canis Majoris	99 15 30	11 41 8
3	Sirius —	123 46 30	11 40 50
9	τ Argo Navis —	63 14 40	11 40 37
11	ξ Argo Navis —	77 48 30	11 41 40
	β Urſæ Majoris	88 25 30	11 42 5
		Mean	11 41 23, 9

* The Old Harbour ſo called.

Observations for Longitude, by the Eclipses of Jupiter's Satellites.

Apparent time 1790.			Satel.	Weather.	Im. or Em.	Longit. in time.	Longit. in Deg.
	d.	h. ′ ″				h. ′ ″	d. ′ ″
Feb.	24	13 31 56, 5	2	Clear,	Emer.	6 10 24, 5	92 36 7, 5
	26	14 45 59	1	Ditto,	Emer.	6 10 35	92 38 45
March	7	11 10 41, 5	1	Ditto,	Emer.	6 10 34, 5	92 38 37, 5
	14	8 7 47, 5	2	Ditto,	Emer.	6 10 33, 5	92 38 22, 5
	15	13 6 38, 5	1	Ditto,	Emer.	6 10 19, 5	92 34 52, 5
	16	7 35 34	1	Ditto,	Emer.	6 10 10	92 32 30
						Mean	92 36 32,5

An excellent chronometer, by *Arnold*, was ufed in obferving the time; to correct which, frequent obfervations of the fun and ftars were taken. The former, by equal or correfponding altitudes, obferved before and after noon, to which the proper equations were applied: and in the latter cafe by taking feveral altitudes of a ftar eaft, and one weft, a few minutes before and after the obfervation: thefe were calculated feparately, and the mean of the refults was applied to the correction of the watch. The apparent time, as deduced from the fun or ftars, agreed in general within a fecond or two.

XX.

Astronomical Observations made on a Survey through the Carnatic and Mysore Country.

By Lieutenant R. H. Colebrooke.

OBSERVATIONS FOR LATITUDE.

Date.	Names of Stars.	Mer. altitudes observed.	Lat. derived.	Mean latitude.	Bearing and distance of the nearest place.
1791.		d. ′ ″	d. ′ ″	d. ′ ″	
Feb. 2	Capella —	57 19 15	13 4 48	13 3 57	Villout Choultry, W by N $\frac{1}{2}$ N 1 mile distant.
	Canopus —	24 23 0	13 3 34		
3	β Aurigæ —	58 10 0	13 3 52		
	β Canis Majoris —	59 5 0	13 3 38		
	Sirius —	60 30 10	13 3 53		
15	Capella —	57 27 0	13 12 33	13 13 14, 6	Chitore Fort, N 65 W 1 $\frac{1}{4}$ mile dist.
	Aurigæ —	58 19 45	13 13 37		
	Sirius —	60 20 30	13 13 34		
16	β Aurigæ —	58 18 0	13 11 52	13 12 19	Marsundrum Village, S by E 4 furl dist.
	β Canis Majoris —	58 56 0	13 12 38		
	Sirius —	60 21 37	13 12 27		
18	Capella —	57 25 30	13 11 3	13 11 38, 7	Moogly Pagoda, W 5 S 4 furl. dist.
	Canopus —	24 14 50	13 11 46		
	β Aurigæ —	58 18 20	13 12 12		
	Sirius —	60 22 30	13 11 34		

Date.	Names of Stars.	Mer. altitudes observed.	Lat. derived.	Mean latitude.	Bearing and distance of the nearest place.
1791.		d. ′ ″	d. ′ ″	d. ′ ″	
Feb. 20	Capella —	57 26 45	13 12 19	13 12 51	Palmanaire, S 60 E 1 mile dist.
	Sirius —	60 21 15	13 12 49		
21	β Aurigæ —	58 19 30	13 13 22		
	Sirius —	60 21 30	13 12 34		
	β Aurigæ —	58 19 20	13 13 12		
Mar. 2	β Aurigæ —	58 11 0	13 4 52	13 4 35, 5	Oosscottah, N 72 W 1 mile 6 furl. dist.
	Sirius —	60 29 45	13 4 19		
May 7	α Ursæ Majoris —	39 36 30	12 27 59	— —	Santanoor, N by E 2 furl. dist.
13	α Ursæ Majoris —	39 34 15	12 25 44	12 25 42, 5	Arakeeree Fort, SE 2 furl. dist.
	Ditto, by Lieut. Bushby	39 34 12	12 25 41		
25	γ Ursæ Majoris —	47 35 45	12 26 14	12 26 24, 6	Kanambaddy, W 1 mile dist.
	δ Ursæ Majoris —	44 15 40	12 26 19		
	Σ Ursæ Majoris —	45 22 0	12 26 41		
30	η Ursæ Majoris —	52 11 50	12 32 47	12 32 43	Tondanoor Village, N N W 6 furl. d.
	θ Centauri —	42 8 30	12 32 39		
June 11	ξ Ursæ Majoris —	46 45 45	12 46 2	21 45 29	Yekaty Village, N 27 E 4 furl. dist.
	η Ursæ Majoris —	52 24 30	12 45 24		
	θ Centauri —	41 56 10	12 45 1		
17	η Ursæ Majoris —	52 25 15	12 46 9	12 46 8	Bimnelly Village, W ½ furl. dist.
	θ Centauri —	41 55 0	12 46 7		
19	η Ursæ Majoris —	52 27 15	12 48 9	12 47 58	Hooliordroog, N 74 W 4 miles dist.
	θ Centauri —	41 35 20	12 47 47		

Date.	Names of St.rs.	Mer. altitudes observed.	Lat. derived.	Mean latitude.	Bearing and diſtance of the neareſt place.
1791.		d. ′ ″	d. ′ ″	d. ′ ″	
June 29	Antares —	51 6 0	12 57 31	12 57 20, 5	Maggry Pagoda, with the Bull, N 60 E 1 furlong diſt.
	η Draconis —	40 59 40	12 57 10		
July 21	τ Scorpii —	40 27 30	12 37 23	12 37 42	Anchitty Droog, S 38 E 3 ¾ mile diſt.
	γ Draconis —	51 7 30	12 38 1		
25	Antares —	51 29 0	12 34 30	— —	Neeldurgum, N 70 W 1 ¾ mile diſt.
Sept. 29	δ Cygni —	58 31 30	13 8 41		
	a Cygni —	58 36 45	13 8 47		
	γ Grus —	38 32 30	13 8 27		
30	δ Cygni —	58 31 35	13 8 46	13 8 50, 3	Singanaikanapilly Village, SSE 2 f. d.
Oct. 1	a Cygni —	58 36 45	13 8 47		
2	Fomalhaut —	46 8 35	13 8 59		
3	Fomalhaut —	46 8 30	13 9 4		
6	a Grus —	28 54 50	13 9 12		
Nov. 26	Fomalhaut —	46 20 0	12 57 36		
	a Caſſiopeæ —	47 34 30	12 57 20	12 57 39	In the Area of Bangalore Palace.
	Ditto, by Capt. Kyd,	47 35 0	12 57 50		
	δ Caſſiopeæ —	43 50 0	12 57 53		
Dec. 16	Sun's Lower Limb —	53 22 35	13 1 8		
	a Caſſiopeæ —	47 38 30	13 1 21		
	θ Eridani —	35 51 30	13 0 59	13 1 15, 5	Sandicoupang Fort, E ½ furlong diſt.
	a Perſei —	53 55 45	13 1 34		

Date.	Names of Stars.	Mer. altitudes observed. d. ′ ″	Lat. derived. d. ′ ″	Mean latitude. d. ′ ″	Bearing and distance of the nearest place.
1791. Dec. 27	δ Cassiopeæ —	43 49 45	12 57 40		
	θ Eridani —	35 55 15	12 57 14		
	α Persei —	53 52 7	12 57 57	12 57 27	Maggry Pagoda, with the Bull, N 76 W 4 furlongs dist.
28	θ Eridani —	35 55 20	12 57 9		
	α Persei —	53 52 0	12 57 50		
31	Sun's Lower Limb —	53 40 15	12 57 19		
1792. Feb. 20	β Aurigæ —	57 34 0	12 27 53		
	β Canis Majoris —	59 40 45	12 27 51		
	Sirius —	61 6 15	12 27 43		
21	β Aurigæ —	57 34 10	12 28 3		
	β Canis Majoris —	59 41 10	12 27 26		
	Sirius —	61 6 0	12 27 58		
29	β Aurigæ —	57 34 10	12 28 3	12 27 52,2	Camp before Seringapatam, the Great Pagoda bearing from the place of observation S 2° W 2¾ miles distant—Latitude of Great Pagoda derived 12° 25′ 34″.
Mar. 3	Aurigæ —	57 34 15	12 28 8		
	Sirius —	61 6 25	12 27 33		
4	ξ Ursæ Majoris —	46 28 0	12 28 3		
	η Ursæ Majoris —	52 7 0	12 27 42		
15	ε Canis Majoris —	48 51 0	12 27 45		
	δ Canis Majoris —	51 28 0	12 28 11		
April 19	α Ursæ Majoris —	39 38 30	12 29 29	— —	Tripatore Fort, SE 1 mile dist.
23	α Ursæ Majoris —	40 3 20	12 54 30	12 54 32	Vellore Fort.
	δ Centauri —	27 33 15	12 54 34		

Obſervations for Longitude by the Eclipſes of Jupiter's Satellites.

Date and apparent time of the obſervations.	Sat.	Imm. or Emer.	Weather.	Longit. in time.	Longit. in degrees.	Bearing and diſtance of the neareſt place.
1791. d. h. ′ ″				h. ′ ″	d. ′ ″	
Feb. 22 12 33 42	1	Imm.	Clear,	5 14 10	78 32 30	Palmanaire, S 60 E 1 mile diſt.
Mar. 3 8 54 3	1	Imm.	Ditto,	5 10 28	77 37 0	Ooſlcotta, N 72 W 1¾ mile diſt.
May 27 10 9 42	1	Emer.	Windy,	5 6 24	76 36 0	Seringapatam Great Pagoda, S 8° E 5 m. d.
June 12 8 25 19, 5	1	Emer.	Clear,	5 6 52, 5	76 43 7, 5	Yekaty Village, N 27 E 4 furl. diſt.
19 10 18 54	1	Emer.	Ditto,	5 7 17	76 49 15	Hoolior-droog, N 74 E 4 miles diſt.
1792.						
Mar. 12 13 36 9	1	Imm.	Ditto,	5 6 12	76 33 0	Camp before Seringapatam Pagoda, bearing S 2 W 2¼ miles diſt.
19 15 32 3	1	Imm.	Ditto,	5 6 8	76 32 0	
21 10 0 54	1	Imm.	Ditto,	5 5 57	76 29 15	

Magnifying power of the Teleſcope 80 to 100 Achromatic.

XXI.

Table of Latitudes and Longitudes of ſome principal Places in India, determined from Aſtronomical Obſervations.—By Mr. Reuben Burrow. Communicated by Lieut. R. H. Colebrooke.

PLACES.	Latitude N. d.	′	″	Longit. in time. h.	′	″	REMARKS.
Ruſſapugly, near Calcutta —	22	30	20	5	53	30	Mr. Burrow's Reſidence.
Bygonbarry — —	24	48	14	6	0	46	The old Factory on the Barrampooter River.
Dewangunge — —	25	9	31	5	58	36	
Tealcopee — —	25	19	16	5	58	34	
Shealdoo Nullah — —	25	58	8	5	59	17	At the Conflux with the River.
Bakkamarchor — —	26	1	44	5	59	43	
Kazycottah — —	26	9	4	6	0	33	
Goalparra — —	26	11	21	6	2	9	The Kotie, or Factory.
Doobarey — —	26	1	6	5	59	42	The Mount.
Dadnachorr — —	25	3	36				The large Tree.
Pookereah — —	24	54	6	5	59	45	
Sagow — —	24	35	41				Between two large trees, center of the town.
Tingarchorr — —	24	18	6	6	2	15	Near the mouth of the Bannar River.
Diggamabad — —	24	0	38				
Ameerabad — —	23	55	31	6	3	7	Mouth of the Nullah.
Sampmarray — —	23	40	16	6	2	30	
Remateally Nullah — —	22	55	35	6	2	54	Conflux with the Megna River.
Rajegunge — —	22	38	7	6	0	38	End of the Town near Sootaloory.
Coweally — —	22	37	30	5	59	55	
Gonganagor — —	22	37	30	5	59	47	

At Cheduba, and on the Arracan Coast.

PLACES.	Latitude.	Longitude.	Spot of Obfervation and Remarks.
	d. ′ ″	h. ′ ″	
Tree Ifland	18 27 30	6 16 12	
Cheduba Flag Staff	18 53 8	6 14 28	
Houfe Ifland	18 56 42	6 14 19	Center Rock
Maykawoody	18 50 43	6 15 11	Fort of Cheduba
Jy	19 5 46	6 15 11	Fort of Tumbiah
Dumfil	18 57 40	6 16 7	An Ifland in the Cantabida, or Catabida River.
Jykuna Ifland	18 44 40	6 15 43	North end of the Ifland
Chagoo Rock	18 48 51		Near the Mouth of the Catabida River.
Kyaunimo	18 54 36	6 16 0	A Town in the Catabida Harbour.
Cedars Point	18 52 58	6 15 21	A remarkable Point in Cheduba.

On the Ganges, &c.

PLACES.	Latitude.	Longitude.	Spot of Obfervation and Remarks.
Nnddea	23 25 49	5 53 32	Junction of the Hoogly and Caffimbazar Rivers.
Sackey Fort	23 40 0		
Gour	24 53 0	5 52 13	The ancient Round Tower.
Rajemahl	25 3 15	5 50 56	The Marble Palace.
Colgong	25 16 6	5 48 39	Mr. Cleveland's Bungalow
Mongheer	25 22 57	5 45 57	Rocky point of the Fort.
Patna	25 36 3	5 41 2	Chehelfetoon, or Alaverdi's Palace near the Fort.
Bankipoor	25 37 38	5 40 40	Granary.
Buxar	25 34 27	5 35 59	Fort Flag Staff.
Mouth of the Caramnaffa River	25 30 20	5 35 31	

PLACES.	Latitude.			Longitude.			Spot of Obſervation and Remarks.
	d.	′	″	h.	′	″	
Mouth of the Goomty — —	25	31	25	5	32	36	
Oojear — —	25	35	21				
Benares — —	25	18	36	5	31	59	The Hindoo Obſervatory.
Chunar Fort — —	25	7	40	5	31	22	Flag Staff.
Chunar Camp — —	25	6	30	5	31	12	Captain Bough's Bungalow.
Tonſe River — —	25	16	16	5	28	0	Conflux with the Ganges.
Allahabad — —	25	25	56	5	27	24	SE corner of the Fort at Preyag.
Correahcottah — —	25	33	16	5	26	28	Cloſe to the Nullah, higheſt part of the Town.
Surajepoor — —	26	10	24	5	21	58	River ſide, near the Middle of the Town.
Jaujeſmow — —	26	26	25	5	21	15	Seebſmot on the Hill.
Caunpour — —	26	30	3	5	20	54	Magazine Gaut.
Joognagpoor — —	26	44	46	5	20	15	At the Gaut.
Nanamow — —	26	53	0	5	20	0	At the old Stone Gaut.
Mindi Gaut — —	27	0	33	5	19	30	
Canouge — —	27	3	30	5	19	12	The Fort.
Cuſſumkhore — —	27	8	56	5	19	5	Seebſmot on the Hill.
Keaſſpore — —	27	13	25				
Sungrumpore — —	27	14	28	5	18	8	The Gaut.
Futtyghur — —	27	23	11	5	18	5	The Fort.
Jillalabad — —	27	43	56	5	18	56	The Fort.
Berimutana — —	27	52	22	5	18	20	The Well.
Kheerpoor — —	27	58	22	5	18	16	Near the Old Fort.
Cutterah — —	28	1	47	5	18	12	The Brick Fort.

PLACES.	Latitude.			Longitude.			Spot of Observation and Remarks.
	d.	′	″	h.	′	″	
Jessocah — —	28	8	17	5	17	53	Well.
Fereedpour — —	28	12	54	5	17	41	The Fort.
Bareilly — —	28	22	5	5	17	5	The Fort.
Lumberah — —	28	27	39				
Hafizgunge — —	28	29	40	5	17	53	The Serai.
Nabobgunge — —	28	32	29	5	18	11	
Lillowry — —	28	36	38				
Pillibeat — —	28	37	42	5	18	46	The Edgaw.
Ditto, Hafiz Musjid — —	28	38	20	5	18	47	Center of Pillibeat.
Gowneerah — —	28	37	35				
Barrower — —	28	36	53	5	17	55	NE end of the Town on the Banks of the Bhagul.
Shair Ghur — —	28	38	50	5	17	1	Fort.
Bourkah — —	28	43	23	5	16	26	
Rampour — —	28	48	50	5	15	34	NW Gate of the City.
Moradabad — —	28	50	24	5	14	44	Center of Rustum Khan's Palace.
Mahmudpore — —	28	42	1	5	14	12	
Sumbul — —	28	35	14	5	13	49	The ancient Fort Gate of Kollankee Ootar.
Boojepoor — —	28	56	39	5	14	55	Seebs Temple in the Tope
Bhyrah — —	29	2	11	5	15	6	
Cossipore — —	29	12	44	5	15	24	Fort.
Hazaretnagor — —	29	12	5	5	14	53	Fort.
Rair — —	29	21	13	5	14	33	Hindoo Moat, through the Town.
Afzul Ghur — —	29	23	45	5	14	14	Palace in the Fort.

PLACES.	Latitude. d.	′	″	Longitude. h.	′	″	Spot of Obfervation and Remarks.
Sheercote	29	19	48	—			Principal Mofque in the City.
Nundenah	29	27	16	5	13	19	Brick Fort.
Nidjibabad	29	36	46	5	12	52	White Mofque.
Patter Ghur	29	36	31	5	12	59	High Gate of the Fort.
Chundnywalla	29	52	8	—			
Afoph Ghur	29	44	14	5	12	19	Center of the Fort.
Borunwalla	29	47	26	—			This Village is in the large Jungle.
Lolldong	29	50	28	—			Place where the Camp was in 1774.
Joogywalla	29	58	0	5	12	16	Bamboo Fort.
Chandy Gaut	29	56	24	5	12	10	Stone Temple, oppofite Hurdwar.
Hurdwar	29	57	9	5	12	9	Northernmoft Building in the Town.
Congree	29	53	19	—			Alfo called Hyder Ghur.
Nagal	29	39	40	5	12	16	The Nawab's Artillery Shed.
Mundawer	29	29	5	5	12	2	Dowlet Khan's Musjid
Darahnagur	29	16	49	5	12	0	Nidjib Khan's Seray.
Chaundpour	29	13	4	5	12	12	
Amrooah	28	54	22	5	13	27	Fort of the Sieds.
Khuntpour	28	44	29	—			
Huffenpour	28	43	8	5	12	39	Stone Gate of the Fort.
Seerfee	28	28	52	5	12	37	Well of the Town.
Anopfhir	28	22	50	5	12	36	On the Steep Bank, Eaft of the Flag Staff.
Donaree	28	21	10	—			Mud Fort.
Chandoufey	28	26	51	5	14	45	Eaft Gate of the Town.

PLACES.	Latitude.			Longitude.			Spot of Obſervation and Remarks.
	d.	′	″	h.	′	″	
Biſſoolie — —	28	18	51	5	15	17	Doondy Khan's Musjid.
Bunneah — —	28	12	29				Village in a Jungle.
Budawun — —	28	2	39	5	16	0	Large ancient Moſque of Cuttub ud Dien.
Oſſoheet — —	27	48	12	5	16	28	Eaſt Gate.
Belloor — —	26	37	24	5	20	40	Gow Ghaut.
Gopalpour — —	26	3	49				
Mobarickpour — —	25	31	18				
Bogwangolah — —	24	20	45	5	22	50	Mouth of the Culcullia * River.
Tea Cally Dumduma —	24	1	26	5	55	40	
Pubna — —	24	0	12	5	56	27	The Hindoo Temple.
Coſſunda — —	23	53	48	5	59	3	
Dacca — —	23	43	0	6	1	12	The Chief's Houſe, called the Pooſhta.

* The entrance of the Culcullee, or Culcullia, River is no longer at Bogwangolah, but about twelve miles lower down, between Murcha and Cutlamary; which change may have been produced by the encroachment of the Ganges.

Note by Mr. Burrow.

As a more particular account will be given hereafter of the manner in which these Latitudes and Longitudes were deduced, it will be sufficient here to mention, that the Meridian Altitudes of Stars from whence the Latitudes were derived, sometimes amounted to twenty or thirty, North and South, and very seldom were less than five or six, and those mostly on both sides the Meridian; so that, upon the whole, I believe very few of the foregoing Latitudes can be more than five seconds wrong, perhaps not many of them so much, as the single observations with the Sextant seldom differed from one another more than fifteen or twenty seconds, and very often not half the number. As to the Longitudes, it is possible there may in some cases be an error of two or three miles; but I can scarce believe there is any great probability of it, as the observations were made, as well as calculated, in a different and more exact manner than is generally used at present.

XXII.

ON SOME EXTRAORDINAY FACTS, CUSTOMS, AND PRACTICES OF THE HINDUS.

BY THE PRESIDENT.

IN the preliminary difcourfe addreffed to the Society by our late Prefident, *Man* and *Nature* were propofed as the comprehenfive objects of our Refearches; and although I by no means think that advantage fhould be taken of this extenfive propofition to record every trivial peculiarity of practice, habit, or thinking, which characterizes the natives of *India*, many fingularities will be found amongft them which are equally calculated to gratify curiofity, and to attract the notice of the philofopher and politician.

Of all ftudies, that of the human mind is of the greateft importance; and whether we trace it in its perfection or debafement, we learn to avoid error, or obtain models for improvement, and examples for imitation. In purfuing cuftoms and habits to the principles from which they are derived, we afcertain by the fure rule of experience the effects of natural or moral caufes upon the human mind.

The characters of the natives of *India*, notwithftanding all that has been publifhed in *Europe*, are by no means well underftood there; and a careful and accurate inveftigation of them, with a due difcrimi-

nation of habits and usages, as local or general, would afford a subject for a curious, useful, and entertaining dissertation.

It is not my intention to undertake it. I neither profess to have ability, nor have I leisure for the task; and the preceding remarks are offered to the Society for the purpose only of introducing the recital of some extraordinary facts, customs, and practices of this country, which have occurred to my observation in the course of public duty. If the narrative has too much of the language of office, it may be deemed a sufficient compensation that it is extracted from official documents and judicial records, and hence has a claim to authenticity.

The inviolability of a *Bráhmen* is a fixed principle of the *Hindus*; and to deprive him of life, either by direct violence, or by causing his death in any mode, is a crime which admits of no expiation. To this principle may be traced the practice called *Dherna*, which was formerly familiar at *Benares*, and may be translated *Caption* or *Arrest*. It is used by the *Bráhmens* in that city, to gain a point which cannot be accomplished by any other means; and the process is as follows:

The *Bráhmen* who adopts this expedient for the purpose mentioned, proceeds to the door or house of the person against whom it is directed, or wherever he may most conveniently intercept him: he there sets down in *Dherna*, with poison, or a poignard, or some other instrument of suicide in his hand, and threatening to use it if his adversary should attempt to molest or pass him, he thus completely arrests him. In this situation the *Bráhmen* fasts; and by the rigor of the etiquette, which is rarely infringed, the unfortunate object of his arrest ought also to fast; and thus they both remain until the institutor of the

Dherna obtains ſatisfaction. In this, as he ſeldom makes the attempt without reſolution to perſevere, he rarely fails; for if the party thus arreſted were to ſuffer the *Bráhmen* ſitting in *Dherna* to periſh by hunger, the ſin would for ever lie upon his head. This practice has been leſs frequent of late years, ſince the inſtitution of the Court of Juſtice at *Benares* in 1783; but the interference of that Court, and even that of the Reſident there, has occaſionally proved inſufficient to check it; as it has been deemed in general moſt prudent to avoid for this purpoſe the uſe of coercion, from an apprehenſion that the firſt appearance of it might drive the ſitter in *Dherna* to ſuicide. The diſcredit of the act would not only fall upon the officers of juſtice, but upon the government itſelf.

The practice of ſitting in *Dherna* is not confined to male *Bráhmens* only. The following inſtance, which happened at *Benares* in the year 1789, will at once prove and exemplify it:—

Beenoo Bhai, the widow of a man of the *Bráhminical* tribe, had a litigation with her brother-in-law *Balkiſhen*, which was tried by arbitration; and the trial and ſentence were reviſed by the court of juſtice at *Benares*, and again in appeal.

The ſuit of *Beenoo* involved a claim of property and a conſideration of caſt, which her antagoniſt declared ſhe had forfeited. The deciſion was favourable to her, but not to the extent of her wiſhes; and ſhe reſolved therefore to procure by the expedient of the *Dherna*, as above explained, what neither the award of arbitration nor the judicial deciſion had granted.

In conformity to this reſolution, *Beenoo* ſat down in *Dherna* on *Balkiſhen*; and he, after a perſeverance

of ſeveral days, apprehenſive of her death, repaired with her to a *Hindu* temple in *Benares*: where they both continued to faſt ſome time longer. Thirteen days had elapſed from the commencement of *Balkiſhen*'s arreſt, when he yielded the conteſt, by entering into a conditional agreement with *Beenoo*, that if ſhe could eſtabliſh the validity of her caſt, and in proof thereof prevail on ſome creditable members of her own tribe to partake with her of an entertainment of her providing, he would not only defray the expence of it, but would alſo diſcharge her debts. The conditions were accepted by *Beenoo*, who fulfilled her part of the obligation; and her antagoniſt, without heſitation, defrayed the charges of the entertainment: but the non-performance of his engagement to diſcharge her debts, induced *Beenoo Bhaia* to inſtitute a ſuit againſt him; and the practice of the *Dherna*, with the proofs of it, were thus brought forward to official notice.

It is not unworthy of remark, that ſome of the *Pandits*, on being conſulted, admitted the validity of an obligation extorted by *Dherna*, provided the object were to obtain a juſt cauſe or right, wickedly withheld by the other party, but not otherwiſe. Others again rejected the validity of an engagement ſo extorted, unleſs it ſhould be ſubſequently confirmed by the writer, either in whole or in part, after the removal of the coercion upon him.

Of the practice which I have related, no inſtance exactly ſimilar has occurred to my knowledge in *Bengal* or *Behar*, although *Bráhmens*, even in *Calcutta*, have been known to obtain charity or ſubſiſtence from *Hindus*, by poſting themſelves before the doors of their houſes, under a declaration to remain there until their ſolicitations were granted. The moderation of the demand generally induces a compliance with it;

which would be withheld if the requisition were excessive. But I have been credibly informed that instances of this custom occasionally occur in some parts of the *Vizier*'s dominions, and that *Bráhmens* have been successfully employed there to recover claims, by calling upon the debtor to pay them, with a notification that they would fast until the discharge of the debt. The debtor, if he possesses property or credit, never fails to satisfy the demand against him.

Another practice, of a very singular and cruel nature, is called Erecting a *Koor*. This term is explained to mean a circular pile of wood which is prepared ready for conflagration. Upon this, sometimes a cow, and sometimes an old woman, is placed by the constructors of the pile; and the whole is consumed together. The object of this practice is to intimidate the officers of government, or others, from importunate demands, as the effect of the sacrifice is supposed to involve in great sin the person whose conduct forces the constructor of the *Koor* to this expedient.

An instance of this practice occurred in a district of the province of *Benares* in the year 1788. Three *Bráhmens* had erected a *Koor*, upon which an old woman had suffered herself to be placed; the object of temporary intimidation was fully attained by it, and the timely interposition of authority prevented the completion of the sacrifice. It cannot be uninteresting to know the cause which urged the three *Bráhmens* to this desperate and cruel resource. Their own explanation is summarily this: That they held lands in partnership with others, but that the public assessment was unequally imposed upon them; as their partners paid less, whilst they were charged with more than their due proportion; they therefore refused to discharge any part of the revenues whatever, and erected a *Koor* to intimidate the government's officers from

making any demands upon them. Their ſole object, as they explicitly declared, was to obtain an equal diſtribution of the public aſſeſſment between themſelves and their partners.

A woman, nearly blind from age, had in this inſtance been placed upon the *Koor*: ſhe was ſummoned to appear before the Engliſh ſuperintendent of the province, but abſolutely refuſed to attend him; declaring that ſhe would throw herſelf into the firſt well rather than ſubmit. The ſummons was not enforced.

This is the only inſtance of ſetting up a *Koor* which had occurred for many years, previous to 1788, although the practice is ſaid to have been frequent formerly. No information has reached me of the repetition of this practice in *Benares*, or of the exiſtence of it in any other part of the Company's poſſeſſions; nor is it pretended that it was ever general throughout *Benares*, but is expreſsly aſſerted to have been limited to a very ſmall portion of that extenſive province.

This laſt-mentioned fact is very oppoſite to that humanity and mildneſs of diſpoſition by which the author of the hiſtorical diſquiſition, regarding ancient and modern *India*, affirms the inhabitants of this country to have been diſtinguiſhed in every age. As a general poſition, liable to particular exceptions, I am not authorized to diſpute it: but it muſt at the ſame time be admitted, that individuals in *India* are often irritated by petty provocations to the commiſſion of acts which no provocation can juſtify; and, without reference to the conduct of profeſſed depredators, examples may be produced of enormities ſcarcely credible: the reſult of vindictive pride, and ungoverned violence of temper.

In ſupport of theſe aſſertions, I ſhall quote three remarkable inſtances, atteſted by unqueſtionable evidence. In 1791 *Soodiſhter Mier*, a *Bráhmen*, the farmer of land paying revenue and tenant of tax free land in the province of *Benares*, was ſummoned to appear before a native officer, the duty collector of the diſtrict where he reſided. He poſitively refuſed to obey the ſummons, which was repeated without effect; and after ſome time ſeveral people were deputed to enforce the proceſs, by compelling his attendance. On their approaching his houſe he cut off the head of his deceaſed ſon's widow, and threw it out. His firſt intention was to deſtroy his own wife; but it was proved in evidence that, upon his indication of it, his ſon's widow requeſted him to decapitate her; which he inſtantly did.

In this caſe, the proceſs againſt *Soodiſhter* was regular, his diſobedience contemptuous; his ſituation in life entitled him to no particular exemption, he had nothing to apprehend from obeying the requiſition, and he was certain of redreſs if injury or injuſtice were practiſed upon him.

Another *Bráhmen*, named *Baloo Paunden*, in 1793, was convicted of the murder of his daughter. His own account of the tranſaction will beſt explain it, and his motives: I give it in abſtract. That about twelve years before the period of the murder, he, *Baloo*, and another man, were joint tenants and cultivators of a ſpot of ground, when his partner *Baloo* relinquiſhed his ſhare. In 1793 this partner again brought forward a claim to a ſhare in the ground: the claim was referred to arbitration, and a deciſion was pronounced in favour of *Baloo*. He conſequently repaired to the land, and was ploughing it, when he was interrupted by his opponent. The words of *Baloo* are as follows: " I became angry, and en-

"raged at his ſorbidding me; and bringing my own "little daughter *Apmunya*, who was only a year and "a half old, to the ſaid field, I killed her with my "ſword." This tranſaction alſo happened in the province of *Benares.*

The laſt inſtance is an act of matricide, perpetrated by *Beechuk* and *Adher*, two *Bráhmens*, and zemindars, or proprietors of landed eſtates, the extent of which did not exceed eight acres; the village in which they reſided was the property of many other zemindars. A diſpute, which originated in a competition for the general ſuperintendence of the revenues of the village, had long ſubſiſted between the two brothers and a perſon named *Gowry*; and the officer of government, who had conferred this charge upon the latter, was intimidated into a revocation of it by the threats of the mother of *Beechuk* and *Adher* to ſwallow poiſon, as well as to the transfer of the management to the two *Bráhmens*. By the ſame means of intimidation he was deterred from inveſtigating the complaints of *Gowry*, which had been referred to his enquiry by his ſuperior authority.

But the immediate cauſe which inſtigated the *Bráhmens* to murder their mother, was an act of violence, ſaid to have been committed by the emiſſaries of *Gowry*, with or without his authority, and employed by him for a different purpoſe, in entering their houſe, during their abſence at night, and carrying off forty rupees, the property of *Beechuk* and *Adher*, from the apartments of their women.

Beechuk firſt returned to his houſe, where his mother, his wife, and his ſiſter-in-law, related what had happened. He immediately conducted his mother to an adjacent rivulet, where, being joined in the

grey of the morning by his brother *Adher*, they called out aloud to the people of the village, that although they would overlook the aſſault as an act which could not be remedied, the forty rupees muſt be returned. To this exclamation no anſwer was received; nor is there any certainty that it was even heard by any perſon; and *Beechuk*, without further heſitation, drew his ſcymetar, and at one ſtroke ſevered his mother's head from her body, with the profeſſed view, as entertained and avowed both by parent and ſon, that the mother's ſpirit, excited by the beating of a large drum during forty days, might forever haunt, torment, and purſue to death *Gowry* and the others concerned with him. The laſt words which the mother pronounced were, that ſhe would blaſt the ſaid *Gowry* and thoſe connected with him.

The violence aſſerted to have been committed by the emiſſaries of *Gowry* in forcibly entering the female apartments of *Beechuk* and *Adher*, might be deemed an indignity of high provocation; but they appear to have conſidered this outrage as of leſs importance than the loſs of their money, which might and would have been recovered with due ſatisfaction, by application to the Court of Juſtice in *Benares*. The act which they perpetrated had no other ſanction than what was derived from the local prejudices of the place where they reſided: it was a crime againſt their religion: and the two brothers themſelves quoted an inſtance of a *Bráhmen* who, ſix or ſeven years before, had loſt his caſt and all intercourſe with the other *Bráhmens*, for an act of the ſame nature. But in truth *Beechuk* and *Adher*, although *Bráhmens*, had no knowledge or education ſuitable to the high diſtinction of their caſt, of which they preſerved the pride only; being as groſly ignorant and prejudiced as the meaneſt peaſants in any part of the world. They ſeemed ſurpriſed when they heard the doom of

forfeiture of caſt pronounced againſt them by a learned *Pandit*, and openly avowed that, ſo far from conceiving they had committed a barbarous crime, both they and their mother conſidered their act as a vindication of their honour, not liable to any religious penalty.

The Society will obſerve, with ſome ſurprize, that the perpetrators of the ſeveral acts which I have related were *Bràhmens*. Theſe facts took place within three diſtricts only of the province of *Benares*, named *Kuntel*, *Buddhooee*, and *Kereat Sekur*. I mention theſe particulars that I may not lead any perſon into a common error of deducing general concluſions from partial circumſtances. In *Bengal* and *Behar*, where the paſſions of jealouſy, pride, and revenge, ſometimes produce very fatal conſequences, I recollect no inſtance where the efforts of their violence have been transferred from the objects which excited it to others that were innocent, as in the preceding caſes.

That the practice of Infanticide ſhould ever be ſo general as to become a cuſtom with any ſect or race of people, requires the moſt unexceptionable evidence to gain belief: and I am ſorry to ſay that the general practice, as far as regards female infants, is fully ſubſtantiated with reſpect to a particular tribe on the frontiers of *Juanpore*: a diſtrict of the province of *Benares*, adjoining to the country of *Oude*. A race of *Hindus* called *Rajekoomars* reſide here; and it was diſcovered in 1789 only, that the cuſtom of putting to death their female offspring, by cauſing the mothers to ſtarve them, had long ſubſiſted, and did actually then very generally prevail amongſt them. The reſident at *Benares*, in a circuit which he made through the country where the *Rajekoomars* dwell, had an opportunity of authenticating the exiſt-

ence of the cuſtom from their own confeſſions: he converſed with ſeveral: all unequivocally admitted it, but all did not fully acknowledge its atrocity; and the only reaſon which they aſſigned for the inhuman practice, was the great expence of procuring ſuitable matches for their daughters, if they allowed them to grow up. It is ſome ſatisfaction to add, that the cuſtom, though general, was not univerſal, as natural affection, or ſome other motive, had induced the fathers of ſome *Rajekoomar* families to bring up one, or more, of their female iſſue; but the inſtances where more than one daughter had been ſpared, were very rare. One village only furniſhed a complete exception to the general cuſtom; and the *Rajekoomar* informant, who noticed it, ſuppoſed that the inhabitants had ſworn, or ſolemnly pledged themſelves to each other, to bring up their females. In proof of his aſſertion in favour of the village in queſtion, he added, that ſeveral old maids of the *Rajekoomar* tribe then actually exiſted there, and that their celibacy proceeded from the difficulty of procuring huſbands for them, in conſequence of the great expences attending the marriages of this claſs of people.

It will naturally occur to the Society to aſk, by what mode a race of men could be continued under the exiſtence of the horrid cuſtom which I have deſcribed. To this my documents enable me to reply, partly from the exceptions to the general cuſtom, which were occaſionally admitted by the more wealthy *Rajekoomars*; more particularly thoſe who happened to have no male iſſue; but chiefly by intermarriages with other *Rajepoot* families, to which the *Rajekoomars* were compelled by neceſſity.

A *prohibition* enforced by the denunciation of the ſevereſt temporal penalties, would have little efficacy in aboliſhing a cuſtom which exiſted in op-

poſition to the feelings of humanity and natural affection; and the ſanction of that religion which the *Rajekoomars* profeſſed was appealed to, in aid of the ordinances of civil authority. Upon this principle an engagement, binding themſelves to deſiſt in future from the barbarous practice of cauſing the death of their female children, was prepared, and circulated amongſt the *Rajekoomars* for their ſignature; and as it was alſo diſcovered that the ſame cuſtom prevailed, though in a leſs degree, amongſt a ſmaller tribe of people alſo within the province of *Benares*, called *Rajebunſes*, meaſures were adopted at the ſame time, to make them ſenſible of its iniquity, and to procure from them a ſubſcription ſimilar to that exacted from the *Rajekoomars*.

The following is a copy of the engagement which the latter ſubſcribed:—

" *Whereas* it hath become known to the Go-
" vernment of the Honourable Eaſt India Company,
" that we of the tribe of *Rajekoomars* do not ſuffer
" our female children to live; and whereas there is
" a great crime, as mentioned in the *Brehma Bywant*
" *Pooran*, where it is ſaid that killing even a *Fetus*
" is as criminal as killing a *Bráhmen*; and that for
" killing a female, or woman, the puniſhment is to
" ſuffer in the *nerk*, or hell, called *Kat Shootul*, for
" as many years as there are hairs on their female's
" body, and that afterwards that perſon ſhall be born
" again, and ſucceſſively become a leper, and be
" afflicted with the *Jukhima*; and whereas the Britiſh
" Government in *India*, whoſe ſubjects we are, have
" an utter deteſtation of ſuch murderous practices,
" and we do ourſelves acknowledge, that although
" cuſtomary among us, they are highly ſinful, we
" do therefore hereby agree not to commit any longer
" ſuch deteſtable acts: and any among us (which God
" forbid) who ſhall be hereafter guilty thereof, or

" ſhall not bring up and get our daughters married,
" to the beſt of our abilities, among thoſe of our caſt,
" ſhall be expelled from our tribe, and ſhall neither
" eat nor keep ſociety with us, beſides ſuffering
" hereafter the puniſhments denounced in the above
" *Pooran* and *Shaſter*. We have therefore entered
" into this agreement.

" *Dated the* 17*th December*, 1789."

A *record* of the various ſuperſtitious ceremonies which prevail throughout Hinduſtan, would form a large and curious volume; but as all the preceding inſtances which I have related, are taken from tranſactions in *Benares*, I cannot refrain from mentioning the ſuperſtitious notions of the people of that province regarding the ſugar-cane: which proves an ignorance that may be admitted in palliation of groſſer errors. The narrative is a mere extract from an official record, with an omiſſion of ſome words, and ſome trifling verbal alterations.

As it is uſual with the ryots, or huſbandmen, to reſerve a certain portion of the canes of the preceding year to ſerve as plants for their new cultivation, it very frequently happens that inconſiderable portions of the old cane remain unappropriated. Whenever this happens, the proprietor repairs to the ſpot on the 25th of *Jeyte*, or about the 11th of *June*, and having ſacrificed to *Nagbele*, or the tutelary deity of the cane, he immediately ſets fire to the whole, and is exceedingly careful to have this operation executed in as complete and efficacious a manner as poſſible.

This act is performed from an apprehenſion, that if the old canes were allowed to remain in the ground beyond the 25th of *Jeyte*, they would in all probability produce flowers and ſeeds; and the appearance of theſe flowers they conſider as one of the greateſt misfortunes that can befal them.

They unanimoufly affert, that if the proprietor of a plantation ever happens to view even a fingle cane therein in flower after the 25th of *Jeyte*, the greateft calamities will befal himfelf, his parents, his children, and his property: in fhort, that death will fweep away moft of the members, or indeed the whole of his family, within a fhort period after this unfortunate fpectacle. If the proprietor's fervant happens to fee the flower, and immediately pulls it from the ftalk, buries it in the earth, and never reveals the circumftance to his mafter; in this cafe they believe that it will not be productive of any evil confequence. But fhould the matter reach the proprietor's knowledge, the calamities before ftated muft, according to the prevailing ideas, infallibly happen.

In fupport of this belief, many of the moft aged zemindars and ryots in the province of *Benares*, recited feveral inftances of the above nature, which they affirmed to have actually happened during their own time; and moreover, that they had been perfonal witneffes to the evils and misfortunes which befel the unhappy victims of the defcription alluded to.

When we reflect how generally credit was given to the power of witchcraft, long after the revival of letters in *Europe*, and that names of great repute for learning and abilities are found amongft its defenders, we fhall not be furprized that charms and amulets are wore in this country by men of fuperior rank and education; that aftrologers are confulted to name the fortunate hour for commencing a journey or expedition; and that the fafcinating influence of an evil eye upon the human conftitution, as well as the power of witchcraft, is admitted by the vulgar in general. Fortunately, however, the practice is not fuppofed to bear any proportion to the belief of the power; although two recent inftances occur to my

recollection, of individuals having been sacrificed to this popular delusion; or at least the imputation of witchcraft was made the pretence for depriving them of life.

But the judicial records contain a case of great enormity, in which five women were put to death for the supposed practice of sorcery. I shall submit the circumstances of this transaction, with some detail, before the Society, premising that it happened in a district of *Ramgur*, the least civilized part of the Company's possessions, amongst a wild and unlettered tribe, denominated *Soontaar*, who have reduced the detection and trial of persons suspected of witchcraft to a system.

Three men of the cast of *Soontaar*, were in the year 1792 indicted for the murder of five women; the prisoners without hesitation confessed the crime with which they were charged, and pleaded in their defence that with their tribes it was the immemorial custom and practice to try persons notorious for witchcraft. That for this purpose an assembly was convened of those of the same tribe, from far and near, and if after due investigation the charge was proved, the sorcerers were put to death, and no complaint was ever preferred on this account to the ruling power. That the women who were killed had undergone the prescribed form of trial, were duly convicted of causing the death of the son of one of the prisoners by witchcraft, and had been put to death by the prisoners, in conformity to the sentence of the assembly.

The prosecutors, who, agreeably to the forms of the *Mahommedan* law, were the relations of the deceased women, declared they had no charge to prefer against the prisoners, being satisfied that their relations had really practised sorcery.

The cuſtom pleaded by the priſoners was fully ſubſtantiated by the teſtimony of a great number of witneſſes, who recited ſpecific facts in ſupport of it, without any denial or diſagreement; and from the collective evidence exhibited in the courſe of the enquiry, the following curious and extraordinary circumſtances appeared :—

That the ſucceſſive demiſe of three or four young people in a village, led to a ſuſpicion of ſorcery as the cauſe of it; and the inhabitants taking alarm, were upon the watch to detect the witches. They were generally diſcovered dancing naked at midnight by the light of a lamp, with a broom tied round their waiſts, either near the houſe of a ſick perſon, or on the outſide of the village.

To aſcertain with a greater degree of certainty the perſons guilty of practiſing witchcraft, the three following modes are adopted:

Firſt. Branches of the *Saul* tree, marked with the names of all the females in the village, whether married or unmarried, who have attained the age of twelve years, are planted in the water in the morning, for the ſpace of four hours and a half; and the withering of any of theſe branches is proof of witchcraft againſt the perſon whoſe name is annexed to it.

Secondly. Small portions of rice enveloped in cloths, marked as above, are placed in a neſt of white ants; the conſumption of the rice in any of the bags, eſtabliſhes ſorcery againſt the woman whoſe name it bears.

Thirdly. Lamps are lighted at night; water is placed in cups made of leaves, and muſtard-ſeed and oil is poured, drop by drop, into the water, whilſt the name of each woman in the village is pronounced; the appearance of the ſhadow of any woman on the water, during this ceremony, proves her a witch.

Such are the general rules for aſcertaining thoſe who practiſe witchcraft. In the inſtance which I have quoted, the witneſſes ſwore, and probably believed, that all the proofs againſt the unfortunate women had been duly verified: they aſſert in evidence, that the branches marked with the names of the five women accuſed were withered; that the rice in the bags having their ſpecific names, was devoured by the white ants, whilſt that in the other bags remained untouched; that their ſhadows appeared on the water, on the oil being poured upon it whilſt their names were pronounced; and farther, that they were ſeen dancing at midnight in the ſituation above deſcribed.

It is difficult to conceive that this coincidence of proof could have been made plauſible to the groſſeſt ignorance, if experience did not ſhew that prepoſſeſſion will ſupercede the evidence of the ſenſes.

The following cuſtom would be too trivial for notice, if it were not ſtrongly deſcriptive of the ſimplicity and ignorance which mark the character of the generality of the inhabitants of *Ramgur*.

From habitual neglect in aſcertaining the quantities of land held in leaſe, and in defining with accuracy their reſpective tenures, frequent diſputes ariſe between the inhabitants of different villages regarding their boundaries: to determine them, a reference is uſually made to one or more of the oldeſt inhabitants of the adjacent villages; and if theſe ſhould not agree in their deciſion, other men are ſelected from the inhabitants of the villages claiming the diſputed ground and the trial proceeds as follows: Holes are dug in the conteſted ſpot, and into theſe holes each of the choſen men puts a leg, and the earth is then thrown in upon it; and in this ſituation they remain until

one either expreſſes a wiſh to be releaſed, or complains of being bitten or ſtung by ſome inſect. This decides the conteſt, and the property of the ground is adjudged to belong to that village the inhabitant of which goes through the trial with the moſt fortitude, and eſcapes unhurt by inſects.

If the preceding detail has no relation to ſcience, it is at leaſt deſcriptive of manners; and in availing myſelf of the opportunities afforded by official occupations (which is all indeed that theſe occupations admit) to contribute my portion to the reſearches of the Society, my example will, I hope, be imitated by thoſe who with the ſame, or greater opportunities, poſſeſs more knowledge, ability, and leiſure.

NOTE.

Having lately received ſome further documents on the ſubject of the *Dhurna*, which I did not poſſeſs when the preceding paper was read to the Society, I have extracted from them what appears to me requiſite to elucidate this extraordinary practice. From theſe documents it appears that ſeveral caſes of *Dhurna* had been brought before the Provincial Court of Juſtice at *Benares*; and as a penalty had been annexed to the performance of this mode of importunity, it became neceſſary to define with preciſion the rules conſtituting *Dhurna*, according to the *Shaſter* and *Uſage*.

For this purpoſe a queſtion was propoſed to ſeveral *Pandits*, inhabitants of the province and city of *Benares*; and the anſwer ſubſcribed by twenty-three *Pandits* is as follows:

"Any one who sits *Dhurna* on another's door, or in his house, for the realization of a debt, or for other purpose, in which the party sitting takes with him some weapon or poison, and sits down; nor does he eat himself, nor allow the party against whom he is sitting, or his family to eat; nor does he allow any person ingress into that person's house, nor egress from it; and addressing himself in terms of the strongest oaths to the people of the house, he says, "If any "of those of your house shall eat victuals, or go into "your house, or go out of it, I shall either wound "myself with this weapon, or swallow this poison;" and it does sometimes happen that both these events take place, and that he who sits in *Dhurna* is not to remove from it without the intreaty of those on whom he is sitting, or the order of the *Hakim*. Whenever all the requisites above mentioned are found united, they constitute *Dhurna*; but if any one of them be wanting, that is not *Dhurna*, but *Tuckaza* or *Dunning*; and as no text of the *Shaster* hath been found concerning *Dhurna*, wherefore we have delivered the requisites thereof according to the common custom and practice."

There is some difference in the opinions of other *Pandits* as to what is understood to constitute *Dhurna*; but the quotation which I have inserted, appears to me to contain the most authentic information on this subject.

The Society will observe that the practice is not specifically pointed out in the *Shaster*, but has the sanction of usage only.

The following instance is of late occurrence. In *January* 1794, *Mohun Panreh*, an inhabitant of a district in the province of *Benares*, sat down in *Dhurna*

before the houſe of ſome *Rajepoots*, for the purpoſe of obtaining the payment of *Birt*, or a charitable ſubſiſtence to which he had a claim; and in this ſituation deſtroyed himſelf by ſwallowing poiſon. Some of the relations of the deceaſed retained his corpſe for two days before the houſe of the *Rajepoots*; who thus were compelled to forego taking ſuſtenance, in order to induce them to ſettle the *Birt* on the heir of the deceaſed *Bráhmen*.

XXIII.

XXIII.

DESCRIPTION OF THE YAK OF TARTARY,

CALLED

SOORA-GOY,

OR

THE BUSHY-TAILED BULL OF TIBET.

BY LIEUTENANT SAMUEL TURNER.

THE *Yak* of *Tartary*, called *Soora-Goy* in *Hindoſtan*, and which I term the buſhy-tailed bull of *Tibet*, is about the height of an *Engliſh* bull, which he reſembles in the figure of the body, head, and legs. I could diſcover between them no eſſential difference, except only that the *Yák* is covered all over with a thick coat of long hair. The head is rather ſhort, crowned with two ſmooth round horns, that, tapering from the ſetting-on, terminate in ſharp points, arch inwardly, and near the extremities are a little turned back; the ears are ſmall; the forehead appears prominent, being adorned with much curling hair; the eyes are full and large; the noſe ſmooth and convex; the noſtrils ſmall; the neck ſhort, deſcribing a curvature nearly equal to both above and below; the withers high and arched; the rump low. Over the ſhoulders riſes a bunch, which at firſt ſight would ſeem to be the ſame kind of exuberance peculiar to the cattle of *Hindoſtan*; but in reality it conſiſts in the ſuperior length of the hair only, which, as well as that along the ridge of the back to the ſetting-on of the

tail, grows long and erect, but not harſh. The tail is compoſed of a prodigious quantity of long flowing gloſſy hair deſcending to the hock, and is ſo extremely well furniſhed, that not a joint of it is perceptible; but it has much the appearance of a large bunch of hair artificially ſet on. The ſhoulders, rump, and upper part of the body is clothed with a ſort of thick ſoft wool, but the inferior parts with ſtraight pendant hair, that deſcends below the knee; and I have ſeen it ſo long in ſome cattle which were in high health and condition, as to trail upon the ground. From the cheſt, between the fore-legs, iſſues a large pointed tuft of hair, growing ſomewhat longer than the reſt. The legs are very ſhort. In every other reſpect, hoofs, &c. he reſembles the ordinary bull. There is a great variety of colours amongſt them, but black or white are the moſt prevalent. It is not uncommon to ſee the long hair upon the ridge of the back, the tail, tuft upon the cheſt, and the legs below the knee white, when all the reſt of the animal is jet black.

Theſe cattle, though not large boned, from the profuſe quantity of hair with which they are provided, appear of great bulk. They have a down heavy look, but are fierce, and diſcover much impatience at the near approach of ſtrangers. They do not low loud (like the cattle of *England*) any more than thoſe of *Hindoſtan*; but make a low grunting noiſe ſcarcely audible, and that but ſeldom, when under ſome impreſſion of uneaſineſs. Theſe cattle are paſtured in the coldeſt parts of *Tibet*, upon the ſhort herbage peculiar to the tops of mountains and bleak plains. That chain of lofty mountains ſituated between lat. 27 and 8, which divide *Tibet* from *Bootan*, and whoſe ſummits are moſt commonly clothed with ſnow, is their favourite haunt. In this vicinity the ſouthern glens afford them food and ſhelter during the ſeverity of winter; in milder ſeaſons the northern aſpect is more

congenial to their nature, and admits a wider range. They are a very valuable property to the tribes of illiterate *Tartars*, who live in tents and tend them from place to place, affording their herdſmen a mode of conveyance, a good covering, and ſubſiſtence. They are never employed in agriculture, but are extremely uſeful as beaſts of burthen; for they are ſtrong, ſure footed, and carry a great weight. Tents and ropes are manufactured of their hair; and I have, though amongſt the humbleſt rank of herdſmen, ſeen caps and jackets worn of their ſkin. Their tails are eſteemed throughout the *Eaſt*, as far as luxury or parade have any influence on the manners of the people; and on the continent of *India* are found, under the denomination of *Chowries*, in the hands of the meaneſt grooms as well as occaſionally in thoſe of the firſt miniſters of ſtate. Yet the beſt requital with which the care of their keepers is at length rewarded for ſelecting them good paſtures, is in the abundant quantity of rich milk they give, yielding moſt excellent butter, which they have a cuſtom of depoſiting in ſkins or bladders, and excluding the air: it keeps in this cold climate during all the year; ſo that after ſome time tending their flocks, when a ſufficient ſtock is accumulated, it remains only to load their cattle and drive them to a proper market with their own produce, which conſtitutes, to the utmoſt verge of *Tartary*, a moſt material article of merchandize.

XXIV.

A DESCRIPTION OF THE JONESIA.

BY DOCTOR ROXBURGH.

Cl. Heptandria Monogynia.

ESSENTIAL CHARACTER.

CALYX, two-leaved, Corol, one-petaled, Piſtil-bearing; baſe of the tube impervious; ſtamens long, aſcending, inſerted into the margin of a glandulous nectarial ring, which crowns the mouth of the tube, the uppermoſt two of which more diſtant. Style declining. Legume turgid.

Conſecrated to the remembrance of our late Preſident, the moſt juſtly celebrated Sir *William Jones*, whoſe great knowledge of this ſcience, independent of his other incomparable qualifications, juſtly entitles his memory to this mark of regard.

Joneſia As'óca.

Asjogam. Hort. Mat. 5, P. 117, Tab. 59.
As'óca is the *Sanſcrit* name.
Vanjula, a ſynonime.
Ruſſuk of the *Bengaleſe*.

Found in gardens about *Calcutta*, where it grows to be a very handſome middling ſized ramous tree; flowering time the beginning of the hot ſeaſon; ſeeds ripen during the rains. The plants and ſeeds were,

I am informed, originally brought from the interior parts of the country, where it is indigenous.

Trunk erect, though not very ſtraight. Bark dark brown, pretty ſmooth. Branches numerous, ſpreading in every direction, ſo as to form a moſt elegant ſhady head.

Leaves alternate, abruptly feathered, ſeſſile, generally more than a foot long; when young, pendulous and coloured.

Leaflets oppoſite, from four to ſix pair, the lowermoſt broad lanced, the upper lanced; ſmooth, ſhining, firm, a little waved, from four to eight inches long.

Petiole common, round and ſmooth.

Stipule axillary, ſolitary; in fact a proceſs from the baſe of the common petiole, as in many of the graſſes and monandriſts, &c.

Umbels terminal and axillary; between the ſtipule and branchlet, globular, crowded, ſubſeſſile, erect.

Bracts, a ſmall hearted one under each diviſion of the umbel.

Peduncle and pedicels ſmooth, coloured.

Flowers very numerous, pretty large; when they firſt expand, they are of a beautiful orange-colour, gradually changing to red, forming a variety of lovely ſhades; fragrant during the night.

Calix perianth, below two-leaved, leaflets ſmall, nearly oppoſite, coloured, hearted, bracte-like, marking the termination of the pedicel, or beginning of the tube of the corol.

Corol one-petaled, funnel-form; tube ſlightly incurved, firm and fleſhy, tapering towards the baſe (club-funnel-ſhaped) and there impervious; border four-parted; diviſion ſpreading, ſuborbicular; margins moſt ſlightly woolly: one-third the length of the tube.

Nectary, a ſtameniferous and piſtiliferous ring crowns the mouth of the tube.

Stamens, filaments (generally) ſeven, and ſeven muſt, I think, be the natural number; viz. three on each ſide, and one below, above a vacancy, as if the place of an eighth filament, and is occupied on its inſide by the piſtil; they are equal, diſtinct, aſcending, from three to four times longer than the border of the corol.

Anthers uniform, ſmall, incumbent.

Piſtil, germ oblong, pediceled; pedicel inſerted into the inſide of the nectary, immediately below the vacant ſpace already mentioned; ſtyle nearly as long as the ſtamens, declining; ſtigma ſimple.

Pericap, legume ſcimitar-form, turgid, outſide reticulated, otherwiſe pretty ſmooth, from ſix to ten inches long, and about two broad.

Seeds generally from four to eight, ſmooth; grey, ſize of a large cheſnut.

Note. Many of the flowers have only the rudiment of a piſtil: a ſection of one of theſe is at D.

REFERENCES.

A. A branchlet natural ſize.
B. A ſingle flower a little magnified, *aa* the calyx.
C. A ſection of the ſame, exhibiting four of the ſtamens, 1. 1. 1. 1. the piſtil 2, and how far the tube is perforated.
D. A ſimilar ſection of one of the abortive flowers; 3 is the abortive piſtil.
E. The ripe legume opening near the baſe, natural ſize. Note, the ſpace between the *b* and *c* marks the original tube of the corol.
F. One of the ſeeds natural ſize.
G. The baſe of the common petiole, with its ſtipules; *aa* the petioles of the lower pair of leaflets.

XXV.

Astronomical Observations, by William Hunter, Esq.

LATITUDES OBSERVED.

1793.	PLACES.	Sun or Star.	Latitude. d. ′ ″	REMARKS.	
Sept. 27	Khodahgunge, Camp on the South Bank of the Caly-Muddee: Gate N 58 W 4,1 furl. —	⊙ M. A.	27 10 00	Clear.	Moderate.
				By Survey, difference of Latitude between Futtehgurh and Khodahgunge is 11′ 1″, Khodahgunge and Jelalabad 4′ 54″. Making Futtehgurh 27° 22′ 8″, these give Khodahgunge 27° 11′ 7″, and Jelalabad 27° 6′ 13″. As the last agrees so very exactly with the observation, I think the Latitude observed at Khodahgunge was too little.	
28	Jelalabad, Gate N 52 W 1,4 furl.	Ditto,	27 6 9	Clear.	Moderate.
29	Meerin-ca-Seray, M 43 W 2,7 furl.	Ditto,	27 1 17	Do.	Calm.
30	Poorooah, opposite Nanamow; which bears S 73 W 12 f. —	Ditto,	25 53 42	Do.	Moderate.
Oct. 2	Hasan-Gunge, Gate N 62 W 1 furl.	Ditto,	26 46 18	Do.	Do.
5	Lucknow, Mr. Taylor's House —	Ditto,	26 51 11	Do.	Do.

1793.		PLACES.	Sun or Star.	Latitude.	REMARKS.	
				d. ′ ″		
Oct.	17	Lucknow, Mr. Taylor's House —	⊙ M. A.	26 52 1	Clear.	Moderate.
Dec.	12	Futtehgurh, my Bungalah —	Do.	27 22 23	Do.	Do.
	22	Jelalabad (Station of Sept. 28) —	Do.	27 5 59	Do.	Do.
	23	Meerin-ca-Seray (Do. of 29) —	Do.	27 1 19	Do.	Do.
	25	Tekeah, N 85 W 0,8 furl. —	Do.	26 50 59	Do.	Windy.
1794.						
Jan.	16	Sirt'hirra, WNW 2 furl. —	Do.	26 53 57	Do.	Moderate.
	17	Sufdergunge, S 40 W 1 furl. —	Do.	26 55 11	Do.	Windy.
	18	Derriabad, S 64 W 1,5 furl. —	Do.	26 53 37	Do.	Do.
		Ditto — —	⊙ 2 Alts.	26 53 31	Do.	Do.
	19	Shujah - Gunge, N 28 W — S 72 W nearest distance (South end) 0,8 furl.	⊙ M. A.	26 49 35	Do.	Do.
	20	Noray, NE—S 55 W nearest 30 yards	Do.	26 46 45	Do.	Do.
	21	Surya-koond, Temple of the Sun, N 47 W 2, 16 furl. — —	Do.	26 45 6	Do.	Do.
	22	Begum - Gunge, N 48 W — S 27 W nearest distance 50 yards —	Do.	26 39 39	Do.	Moderate.
	23	Tandah, Bungalahs —	Do.	26 33 18	Do.	Do.
	25	Ditto — —	Do.	26 33 29	Do.	Do.
	26	Birriar-Gunge, Gate S 70 E 1,4 furl.	Do.	26 38 40	Do.	Do.
	27	Jelal-ud-deen-nagur, S 66 E 1,8 furl.	Do.	26 43 5	Do.	Do.
	28	Oudh, Tomb of Burla, N 56 W 1,8 furl.	Do.	26 48 43	Do.	Do.
	29	Ditto — —	Do.	26 48 42	Do.	Do.

1794.		PLACES.	Sun or Star.	Latitude. d.	′	″	REMARKS.
Jan.	30	Fyzabad; Octagon Tower at Rumnah	☉ M. A.	26	48	32	Clear. Windy.
	31	Ditto — —	Do.	26	48	17	Do. Moderate. Sun had paſſed the Meridian about three Minutes. Obſervation cloſe.
Feb.	1	Notay, N 42 E—S 63 E 1 furl. —	Do.	26	46	50	Thin flitting clouds; calm.
	2	Shujah-Gunge, Gate S 48 E 4,9 furl.	Do.	26	50	3	Clear. Moderate.
	3	Derriabad, Gate S 80 E 1,3 furl. —	Do.	26	54	15	Do. Windy.
	4	Sufder-Gunge (Station of Jan. 17) —	Do.	26	55	45	Do. Do.
Mar.	30	Bewar — — —	β U. M.	27	13	41	Do. Moderate.
	31	Meinpoory, Mohcumgunge, S 31—73 W 2,75 furl. — —	α Hydræ	27	14	30	Do. Do.
April	1	Ditto — —	β U. M.	27	13	21	Do. Windy.
	2	Boongaung — —	α Hydræ	27	15	30	Do. Moderate.
	3	Mahommedabad — —	Do.	27	18	8	Do. Do.
May	29	Dawah, Mr. Becher's Bungalah —	α ♍	26	51	6	Do. Do.
	30	Ditto — —	Do.	26	51	6	Do. Do.
		Ditto — —	α Draconis	26	50	47	Do. Do.
	31	Poorah, N 68 W 4 furl. —	α ♍	26	44	5	Do. Do.
June	1	Chobepoor — —	α ♍	26	36	41	Do. Do.
	2	Kanhpoor, Mr. Yeld's Bungalah —	α ♏	26	28	37	Do. Do.
	5	Ditto — —	α ♍	26	27	56	Do. Windy.
	12	Oonam, SW 3 furl. —	Do.	26	33	26	Do. Moderate.
	13	Jelooter, Fort N 53 W 7,7 furl. —	Do.	26	41	57	Do. Windy.

1794.		PLACES.	Sun or Star.	Latitude.			REMARKS.	
				d.	′	″		
June	14	Noel-Gunge, Gate S 20 W 2 furl.	*a* ♍	26	47	42	Clear.	Moderate.
Sept.	4	Meah-Gunge (near Jelooter) West Gate No. 1,75 furl. — —	*a* Pisc. Aust.	26	38	4	Do.	Calm.
	11	Kahnpoor, Mr. Yeld's Bungalah —	Do.	26	28	33	Do.	Do.
	15	Ditto — —	Do.	26	28	56	Do.	Moderate.
	16	Rampoor, near Muswasee —	Do.	26	30	49	Do.	Do.
Oct.	17	Esewun S 70 E 4,1 furl. —	⊙ M. A.	26	48	50	Do.	Do.
	18	Aterdhinee, N 42 W 6 furl. —	Do.	26	50	48	Do.	Do.
	19	Sultangunge, S 30 W—S 60 E 1,9 furl.	Do.	26	58	46	Do.	Light Breeze.
	20	Purerah, south-east angle S 30 W 4,4 f.	Do.	27	7	16	Do.	Calm.
	21	Lishkireepoor, S—S 34 E 1,2 furl.	Do.	27	1	39	Do.	Moderate.
	22	Meerin ca-seray, SE 1 furl. —	Do.	27	1	59	Do.	Do.
	23	Sumjum, north end of Gunge —	Do.	27	8	27	Do.	Do.

XXVI.

A DISSERTATION ON SEMIRAMIS,

THE ORIGIN OF MECCA, &c.

From the Hindu Sacred Books.

BY LIEUT. FRANCIS WILFORD.

IN the *Scánda-purána* and *Vis'va-sára pracása*, or *declaration of what is most excellent in the world*, we find the following legends, which have an evident relation to the origin of *Semiramis*, the *Syrian* dove, *Ninus*, and the building of *Nineveh*, *Hierapolis*, and *Mecca*, &c.

Mahá-dévá and his consort *Párvati*, with a view to do good to mankind, quitted their divine abode on *Cailasa*, and proceeded towards the north, alighted on the summit of the *Nishádа* mountains, where they found the *Devátas* ready to receive them, with a numerous retinue of Celestial Nymphs, and Heavenly Choristers. *Maha'-déva* was so struck with the beauty of some of the *Apsaras*, and his looks were so expressive of his internal raptures, that *Pa'rvati*, unable to conceal her indignation, uttered the most virulent reproaches against him. Conscious of the impropriety of his behaviour, *Mahá-déva* used every endeavour to pacify her; he humbled himself; he praised her, and addressed her by the flattering appellation of *Maha'-bha'ga*; but to no purpose. She fled into *Cusha-duip*, on the mountains of *Vahni-vya'pta*, and seating herself in the hollow trunk of a *Sami*-tree, performed

Tapaſya (or auſtere devotion) for the ſpace of nine years; when fire ſpringing from her, pervaded with rapid violence the whole range of mountains, inſomuch, that men and animals were terrified, and fled with the utmoſt precipitation. *Dévi*, unwilling that her devotion ſhould prove a cauſe of diſtreſs to the animal creation, recalled the ſacred flame, and confined it in the *Samì* tree. She made the hollow of that tree her place of abode and dalliance; and hence ſhe is called *Sami-Ra'ma'*, or ſhe who dallies in the *Samì*-tree.

The fugitives returning, performed the *Pujà* in adoration of her, with ſongs in her praiſe. The flame confined in the *Sami*-tree ſtill remains in it; and the *Deva'ta's* are highly delighted with the fire, which is lighted from the *Aranì* (or cubic wood of that tree.) The *Arani* is the mother of fire, and is produced from the *Sami*-tree. From that time, this ſacred tree gives an increaſe of virtue, and beſtows wealth and corn. In the month of *As'wina*, or *Cooar*, the tenth of the firſt fifteen days of the moon is kept holy, and *Pujà* is made to *Sami-Ra'ma'* and to the *Samì*-tree; and thoſe who perform it obtain the object of their deſires. This ſacred rite I have hitherto kept concealed from the world, ſays *Maha'de'va*, but now I make it known for the good of mankind; and whoſoever performs it will be victorious over his enemies for the ſpace of one year.

During theſe tranſactions, *Viſvéſwara-Mahá-déva*, or *Cási-pati* (that is to ſay, *Mahá-de'va*, the lord of the world and ſovereign of *Cás'i* or *Benares*) viſited the country of *Puruſhotama*, in *Utcola-de'ſa* or *Oriſſa*; which he was ſurprized to find overſpread with long graſs, and without inhabitants. He reſolved to deſtroy the long graſs, and for this purpoſe, aſſuming the diminutive ſhape of a dove, with an angry countenance,

commenced the performance *Tapasyà*; his consort *Dévì* also transformed herself into a bird of the same species; and from that time they were known to mankind, and worshipped under the titles of *Capótes-wara* and *Capótésí* or *Iswara* and *Isí*, in the shape of a dove. They set fire to the *Cusha*, or long grass, and the country became like *Vindra-van* near (*Muttra*) and was soon filled with inhabitants. The spot where they performed their *Tapasyà* is called to this day *Capóta-st'hali*, or the place of the dove. It is a celebrated place of worship, and, as I am informed, about five coss from *Jagannàt'ha*.

Almost the whole universe was likewise at this time overspread with long grass; and to destroy it, *Mahá-déva*, with his consort, resolved to travel round the world. They accordingly proceeded into *Cusha-duip*, which they found thinly inhabited by a few *Mlech'has*, or impure tribes, and the *Yavanas*, who concealed their booty in the grass which covered the country.

Mahá-déva took compassion on them, and considering their sufferings in this inhospitable country as a sort of *Tapasyá*, he resolved to bestow *Mócsha*, or eternal bliss, on them: for this purpose he assumed the character and countenance of *Mócshéswara* or *Iswara*, who bestows *Mócsha*; and directed his consort *Capótési*, who is also called *Mahá-bhága*, to go to *Vahni-st'hán*, on the borders of *Cusha-duípa*; there to make *Tapasyá*, in order to destroy the long grass. Accordingly she went into *Vahni st'hán*; and that she might effect it without trouble to herself, she assumed another form: from which circumstance she was named *Anáyásá*. In this character she seated herself on a beautiful hill, and there made *Tapasyá* for many days. At last fire sprung from her devotion; and its presiding power standing before her, she directed him

to deſtroy the *Cuſha*; when the hills were ſoon in a blaze, and the *Yavanas* and other *Mléch'has* obtaining *Móſha*, were reunited to the Supreme Being, without labour or effect on their part; that is to ſay, they were involved in the general conflagration, and deſtroyed.

When the graſs was conſumed, *Anáyáſa* ordered the clouds to gather and pour their waters on the land, which was ſoon overflowed. The waters then retired, and the four great tribes came into *Cuſha-duíp*, where they ſoon formed a powerful nation, and became rich and happy. After the conflagration, all ſorts of metals and precious ſtones were found throughout the country. The countenance of *Aná-yáſá-dévi* is that of fire; and a moſt divine form it is.

The inhabitants ſoon after deviating from the paths of rectitude, became like the *Mléch'has*: and the *Yavanas* re-entered *Cuſha-duip*, plundering and laying waſte the whole country. The four tribes applied to *Anáyáſá*, offered praiſes to her, and requeſted ſhe would protect them againſt the *Yavanas*, and dwell among them. *Mahábhágá* aſſented; and the ſpot which ſhe choſe for her abode, is called *Maha'-bhágá-ſt'hán*, or the place of *Mahá-bhágá*.

In the mean time *Mahá-déva* was at *Móc'ſha-ſt'hán*, or *Mócſhéſa*, beſtowing *Mócſha* on all who came to worſhip there. It is a moſt holy place; and there *Mahádéva* laid aſide the countenance and ſhape of *Capotéſwara*, and aſſumed that of *Mocſhéwara*.

Among the firſt votaries of *Maha'-déva*, who repaired to *Mócſha-ſt'hán*, was *Viraſéna*, the ſon of *Guhyaca*. He had been making *Tapaſyà* for a long time, in honour of *Mahá-déva*, who at laſt appeared to him, and made him king over *St'hávaras*, or

the immoveable part of the creation. Hence he was called *St'há'var-pati*; and the hills, trees, and plants, and graſſes of every kind were ordered to obey him. His native country was near the ſea; and he began his reign with repreſſing the wicked, and inſiſting on all his ſubjects walking in the paths of juſtice and recti-tude. In order to make his ſovereign acknowledged throughout the world, he put himſelf at the head of a numerous army: and directing his courſe towards the north, he arrived at *Móc'ſha-ſt'ha'n*, where he perform-ed the *Pujâ* in honour of *Mócſhéſwara*, according to the rites preſcribed in the ſacred books. From *Móc-ſheſa* he advanced towards the *Agni-pa'rvatas*, or fire-mountains, in *Vahniſt'há'n*; but they refuſed to meet him with preſents, and to pay tribute to him. Incenſ-ed at their inſolence, *St'há'var-pati* reſolved to deſtroy them: the officers on the part of *Samí-Ra'má*, the ſovereign of *Vahniſt'há'n*, aſſembled all their troops, and met the army of *St'ha'var-pâti*; but after a bloody conflict, they were put to flight.

Samí-Ra'má amazed, enquired who this new con-queror was; and ſoon reflected that he could never have prevailed againſt her without a boon from *Ma-há-dé'va*, obtained by the means of what is called *Ugra-Tapaſyá* or a *Tapaſya'* performed with fervor, earneſtneſs of deſire, and anger. She had a confer-ence with *St'há'var-pati*; and as he was, through his *Tapaſyá*, become a ſon of *Mahá-dé'va*, ſhe told him ſhe conſidered him in that light, and would allow him to command over all the hills, trees, and plants in *Vahni-ſt'ha'n*. The hills then humbled themſelves before *St'há'var-pati*, and paid tribute to him.

The origin of *Ninus* is thus related in the ſame ſacred books. One day, as *Mahá-de'va* was ramb-ling over the earth naked, and with a large club in his hand, he chanced to paſs near the ſpot where ſeveral

Munis were performing their devotions. *Maha'-de'va* laughed at them, insulted them in the most provoking and indecent terms; and, lest his expressions should not be forcible enough, he accompanied the whole with significant signs and gestures. The offended *Munis* cursed him; and the *Linga* or *Phallus* fell to the ground. *Maha'-de'va*, in this state of mutilation, travelled over the world, bewailing his misfortune. His consort too, hearing of this accident, gave herself up to grief, and ran after him in a state of distraction, repeating mournful songs. This is what the *Greek* mythologists called the Wanderings of *Dematar*, and the Lamentations of *Bacchus*.

The world being thus deprived of its vivifying principle, generation and vegetation were at a stand: gods and men were alarmed; but having discovered the cause of it, they all went in search of the sacred *Linga*; and at last found it grown to an immense size, and endowed with life and motion.

Having worshipped the sacred pledge, they cut it, with hatchets, into one-and-thirty pieces, which, *Polypus*-like, soon became perfect *Lingas*. The *Devatas* left one-and-twenty of them on earth; carried nine into Heaven, and removed one into the inferior regions, for the benefit of the inhabitants of the three worlds. One of these *Lingas* was erected on the banks of the *Cumud-vati*, or *Euphrates*, under the name of *Ba'léswara-Linga*, or the *Linga* of *Iswara the Infant*, who seems to answer to the *Jupiter Puer* of the western mythologists. To satisfy *Dévi*, and restore all things to their former situation, *Mahá-déva* was born again in the character of *Ba'léswara*, or *Iswara the Infant*. *Ba'léswara*, who fosters and preserves all, though a child, was of uncommon strength; he had a beautiful countenance; his manners were most engaging; and his only wish was to please every

body; in which he ſucceeded effectually; but his ſubjects waited with impatience till he came to the age of maturity, that he might bleſs them with an heir to his virtues. *Bálésvara*, to pleaſe them, threw off his childlike appearance, and ſuddenly became a man, under the title of *Lílésvara*, or *Iſwara*, who gives pleaſure and delight. He then began to reign over gods and men, with the ſtricteſt adherence to juſtice and equity: his ſubjects were happy; and the women beheld with extacy his noble and manly appearance. With the view of doing good to mankind, he put himſelf at the head of a powerful army, and conquered many diſtant countries, deſtroying the wicked, and all oppreſſors. He had the happineſs of his ſubjects and of mankind in general ſo much at heart, that he entirely neglected every other purſuit. His indifference for the female ſex alarmed his ſubjects: he endeavoured to pleaſe them; but his embraces were fruitleſs. This is termed *Aſc'halanſt'há'n.* The *Apſaras*, or celeſtial nymphs, tried in vain the effect of their charms. At laſt *Sami-Rá'má* came to *Aſc'halanſt'há'n*, and retiring into a ſolitary place in its vicinity, chanted her own metamorphoſes and thoſe of *Lílésvara*, who happening to paſs by, was ſo delighted with the ſweetneſs of her voice, that he went to her and enquired who ſhe was. She related to him how they went together into *Utcoladéſa* in the characters of the *Capótéſwarà* and *Capotéſi:* adding, you appeared then as *Mocſheſwara*, and I became *Anaya'ſa*; you are now *Lilésvara*, and I am *Sàmì-Ràmà*, but I ſhall be ſoon *Lileſwarì*. *Lilésvara*, being under the influence of *Máya*, or worldly illuſion, did not recollect any of theſe tranſactions; but ſuſpecting that the perſon he was ſpeaking to might be a manifeſtation of *Parvati*, he thought it adviſeable to marry her; and having obtained her conſent, he ſeized her hand, and led her to the performance of the nuptial ceremony, to the univerſal ſatisfaction of his ſubjects.

Gods and men met to solemnize this happy union; and the celestial nymphs and heavenly quiristers graced it with their presence. Thus *Sami-Rámá* and *Lílésware* commenced their reign, to the general satisfaction of mankind, who were happy under their virtuous administration.

From that period the three worlds began to know and worship *Lílésware*, who, after he had conquered the universe, returned into *Cusha-duípa*. *Lílésware* having married *Sami-Rámá*, lived constantly with her, and followed her wherever she chose to go: in whatever pursuits and pastimes she delighted, in these alone he took pleasure; thus they travelled over hills and through forests to distant countries; but at last returned to *Cusha-duíp*: and *Sami-Rámá* seeing a delightful grove near the *Hradancità* (or deep water) with a small river of the same name, expressed a wish that he would fix the place of their residence in this beautiful spot, there to spend their days in pleasure.

This place became famous afterwards, under the name of *Lila-st'hán*, or the place of delight. The water of the *Hradancità* is very limpid, and abounds with *Camala*-flowers, or *red Lotos*.

Sami-Rámá is obviously the *Semiramis* of the western mythologists, whose appellation is derived from the *Sanscrit Sami-Rámésí*, or *Isí (Isis)* dallying in the *Sami*, or Fir-tree. The title of *Sami-Rámésí* is not to be found in the *Puránás*; but it is more grammatical than the other; and it is absolutely necessary to suppose the word *Isí*, or *Esi* in composition, in order to make it intelligible.

Diodorus Siculus * informs us that she was born

* *Diodorus Siculus*, lib. 3. cap. 2.

at *Ascalon:* the *Puránás* say, that her first appearance in *Syria* was at *Asch'alana-st'hán*, orthe place where *Lilésia* or *Ninus* had *Asc'halana*.

The defeat of *Semiramis* by *Staurobates*, is recorded in the *Puránás* with still more extravagant circumstances; for *Staurobates* is obviously *St'hávara-pati*, or *St'háwara-pati*, as it is more generally pronounced.

The places of worship mentioned in the above legends are *Mócshésa* or *Mócha-st'hán*, *Asc'hala-st'hán* or *Asc'halana-st'hán*, two places of the name of *Lila-sth'án* or *Lilésa-st'hán*, *Anáyásá-dévi-st'hán* and *Ma-há-bhá'gá'st'há'n*.

The *Bra'hmens* in the western parts of *India*, insist that *Mócsha st'ha'n* is the present town of *Mecca*. The word *Mócsha* is always pronounced in the vulgar dialects, either *Moca* or *Mucta*; and the author of the *Dabistan* says, its ancient name was *Maca*. We find it called *Maco Raba*, by *Ptolemy*, or *Moca the Great* or *Illustrious*. *Guy Patin* mentions a medal of *Antoninus Pius* with this legend, "ΜΟΚ. ΙΕΡ. ΑΣΥ. ΑΥΤΟ," which he very properly translates, *Moca, sacra, inviolabilis, suis utens legibus*, "*Moca the holy, the inviolable, and using her own laws.*" This, in my humble opinion, is applicable only to *Mecca*, or *Mócsha-st'ha'n*, which the *Pura'na's* describe as a most holy place. The *Arabian* authors unanimously confirm the truth of the above legend; and it is ridiculous to apply it to an obscure and insignificant place in *Arabia Petrea*, called also *Moca*. It may be objected, that it does not appear that *Mecca* was ever a *Roman* colony. I do not believe it ever was; but at the same time it was possible that some connection for commercial purposes might have existed between the rulers of *Mecca* and the *Romans* in *Egypt*. The learned are not ignorant

that the *Romans* boasted a little too much of their progress in *Arabia*; and even medals were struck with no other view, apparently, but to impose on the multitude at *Rome*. It is unfortunate that we do not meet in the *Pura'na's* with the necessary *data* to ascertain, beyond doubt, the situation of *Mocshea*. From the particulars contained in them, however, it appears to have been situated a great way to the westward, with respect to *India*, and not from *Egypt* and *Ethiopia*, as has been shewn in a former dissertation on these countries, and in the third volume of the *Asiatic Researches*.

It is declared in the *Pura'na's* that *Capótéswara* and his consort *Capótési*, in the shape of two doves, remained there for some time; and *Arabian* authors inform us, that in the time of *Mohammed*, there was in the temple of *Mecca* a *pigeon* carved in wood, and another above this: to destroy which, *Mohammed* lifted *Ali* upon his shoulders. These pigeons were most probably placed there in commemoration of the arrival of *Mahá-déva* and *Dévi*, in the shape of two doves.

The worship of the dove seems to have been peculiar to *India*, *Arabia*, *Syria*, and *Assyria*. We read of *Semiramis* being fed by doves in the desart; and of her vanishing at last from the sight of men, in the shape of a dove; and, according to the *Pura'na's*, *Capo'te'si*, or the dove, was but a manifestation of *Sami-Ra'ma'*.

The dove seems to have been in former times the device of the *Assyrian*, as the eagle was of the *Roman* empire; for we read in *Isaias**, "And the inhabit-"ants of this country shall say in that day, such was

* *Isaias*, cap. xx. in fine.

"our expectation! behold whither we wanted to fly "for help from the face of the dove; but how could "we have escaped?"

I have adhered chiefly to the translation of *Tremellius*, which appears the most literal, and to be more expressive of the idea which the prophet wished to convey to the *Jews*, who wanted to fly to *Egypt* and *Ethiopia*, to avoid falling into the hands of the *Assyrians*; but were to be disappointed by the fall of these two empires.

All commentators have unanimously understood *Assyria* by the *Dove*, and have translated the above passage accordingly. *Capóte'si*, or the *Assyrian Dove*, was also mentioned in a song, current in these countries, and which seems to refer to some misfortune that had befallen the *Assyrians*. The 56th Psalm is directed to be sung to the tune of that song, which was known to every body; and for this purpose the first verse, as usual, is inserted. "*The dove of distant countries is now struck dumb.*"

The *Hindus* further insist, that the *black stone* in the wall of the *Caaba*, is no other than the *Linga* or *Phallus* of *Ma'ha'-deva'*; and that when the *Caaba* was rebuilt by *Mohammed* (*as they affirm it to have been*) it was placed in the wall, out of contempt; but the new converted pilgrims would not give up the worship of the *black stone*; and finistrous portents forced the ministers of the new religion to connive at it. *Arabian* authors also inform us that *stones* were worshipped all over *Arabia*, particularly at *Mecca*; and *Al-shahrestanani* * says, that the temple at *Mecca* was dedicated to *Zohal* or *Kyevan*, who is the same with *Saturn*. The author of the *Dabistan* declares posi-

* *Sale's Koran.*

tively that the *Hejar al aſwad*, or the *black ſtone*, was the image of *Kyevun*. Though theſe accounts ſomewhat differ from thoſe in the *Purána's*, yet they ſhew that this *black ſtone* was the object of an idolatrous worſhip from the moſt remote times.

The *Muſſulmans*, in order to palliate their idolatry towards it, have contrived other legends. *Kyevun* is the *Chyun* of Scripture, alſo called *Remphan*, which is interpreted the *God of Time*. If ſo, *Chyun*, or *Kyevun*, muſt be *Mahá-déva*, called alſo *Mahá-cála*, a denomination of the ſame import with *Remphan*; the *Egyptians* called *Horus*, the lord of time; and *Horus* is the ſame with *Hara*, or *Mahá-déva* *.

The reaſon of this tradition is, that the *Sabians*, who worſhipped the ſeven planets, ſeem to have conſidered *Saturn* as the lord of time, on account of the length of its periodical revolution; and it appears from the *Dabiſtan*, that ſome ancient tribes in *Perſia* had contrived a cycle of years, conſiſting of the revolution of *Saturn* repeatedly multiplied by itſelf.

Aſc'hala-ſt'ha'n, or *Aſc'halana-ſt'ha'n*, is obviouſly *Aſcalon*; there *Semiramis* was born, according to *Diodorus Siculus*, or, according to the *Purána's*, there ſhe made her firſt appearance.

Mahá-bhága-ſt'ha'n is the *ſt'há'n* or place of *Samí-Ráma*, in the characters of *Mahá-bhágá*, or the great and proſperous goddeſs. This implies alſo that ſhe beſtowed greatneſs and proſperity to her votaries.

* See Diſſertation on *Egypt*, &c. in the third volume of the *Aſiatic Reſearches*.

We cannot but ſuppoſe that the *ſt'han* of *Máhá-bhága'* is the ancient town of *Mabog*, called now *Men-bigz* and *Menbig*; the *Greeks* called it *Hierapolis*, or the holy city: it was a place of great antiquity; and there was a famous temple dedicated to the *Syrian* goddeſs, whoſe ſtatue of gold was placed in the center, between thoſe of *Jupiter* and *Juno*. It had a golden dove on its head; hence ſome ſuppoſed it was deſigned for *Semiramis*; and it was twice every year carried to the ſea-ſide in proceſſion. This ſtatue was obviouſly that of the great goddeſs, or *Ma-há'bhá'ga'-devi*, whoſe hiſtory is intimately connected with that of the *Dove* in the weſtern mythologiſt, as well as in the *Purána's*.

An ancient author * thus relates her origin; "Di-" citur et *Euphratis* fluvio ovum piſcis *Columba* adſe-" diſſe dies plurimos, et excluſiſſe *Deam benignam* et " miſericordem hominibus ad *bonam vitam*." "It " is related that a *Dove* hatched the egg of a fiſh, " near the *Euphrates*, and that after many days of in-" cubation came forth the *Goddeſs*, *merciful* and *pro-" pitious* to men, on whom ſhe beſtows eternal bliſs." Others ſay that fiſhes rolled an egg upon dry land, where it was hatched by a *Dove*, after which appeared the *Syrian* Goddeſs.

Her origin is thus related in the *Puránás*: The *Yavanas* having for a long time vexed the inhabitants of *Cuſha-duip*, they at laſt applied for protection to *Ma'ha'-bha'ga-devi*, who had already appeared in that country in the characters of *Sami-Ra'ma* and *Capote'si*, or *Isí*, in the ſhape of a *Dove*; they requeſted alſo that ſhe would vouchſafe to reſide amongſt them. The merciful Goddeſs granted their

* *Lucius Amphelius* ad *Macrin.*

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request; and the place where ſhe made her abode was called the *ſt'-han*, or place of *Ma'ha'-bhaga'*.

The *Syrian* name of *Mabog* is obviouſly derived from *Mahá-bhágá*. This contraction is not uncommon in the weſtern dialects, derived from the *Sanſcrit*; and *Heſychius* informs us that the Greeks pronounced the *Hindu* word *Mahá* (great) *Mai*. *Mabog* is mentioned by *Pliny*, where we read *Magog*; but Mr. *Danville* ſhews that it ſhould be *Mabog*: I conclude from ſome manuſcript copies. This is alſo confirmed by its preſent name, which is to this day *Manbig*, or *Manbeg*. We find it alſo called *Bambukeh* (Βαμβυχη) *Bambyce)*; and in *Niebuhr*'s Travels it is alſo called *Bombàdſche*: I ſuppoſe for *Bombakſche* or *Mombigz*: but this is equally corrupted from *Ma'ábhágá*. In the ſame manner we ſay *Bombay* for *Momba*; and what is called in *India Bambu* or *Pambu*, is called *Mambu* in *Thibet*.

The temple of *Mabog* was frequented by all nations; and amongſt them were pilgrims from *India*, according to *Lucian*, as cited by the author of the Ancient Univerſal Hiſtory.

Mabog, or *Hierapolis*, was called alſo *Old Ninus*, or *Nineveh*, according to *Ammianus Marcellinus*, and *Philoſtratus*: and there is no miſtake in *Diodorus Siculus* and *Oteſias*, when they aſſert that there was a town called *Nineveh* near the *Euphrates*. Scripture alſo ſeems to place *Nineveh* thereabout; for it is ſaid that *Rezen* was between *Nineveh* and *Calach*. And the ſituation of *Rezen*, called alſo *Reſaina*, by ancient authors, and *Razain* by the moderns, is well known, as well as that of *Calach* on the banks of the *Lycus*, now the *Zab*, to the eaſtward of the *Tigris*. *Nineveh*, of courſe, muſt have been to the weſtward of theſe two places, and falls where the *Old Ninus* is pointed out by *Ammianus*, *Philoſtratus*, &c.

Two places of the name are mentioned in the *Puránás*, under the name of *Lilaſt'hán*, the *ſt'hán* or place of *Li'lé ſa* or *Ninus*. There can be no doubt, in my humble opinion, of their identity; for *Sami-Ra'ma'* is obviouſly *Semiramis*. *Ninus* was the ſon of *Belus*, and, according to the *Puránás*, *Li'lé ſa* ſprung from *Ba'lé ſwara*, or *Baleſa*; for both denominations, being perfectly ſynonimous, are indifferently uſed in the *Pura'na's*.

Nineveh on the *Tigris*, ſeems to be the *ſt'ha n* of *Li'léſa*, where he laid aſide the ſhape and countenance of *Ba'léſa*, and aſſumed that of *Li'léſa*. The other place of *Lileſa*, which *Samí-Ráma'*, delighted with the beauty of the ſpot, choſe for the place of her reſidence, is *Hierapolis*, called alſo *Ninus* or *Nineveh*; hence we find her ſtatue in the temple of *Wahab'ha'ca'*. It is ſaid to have been ſituated near a deep pool, or ſmall lake, called from that circumſtance *Hradancità*; and the pool near the *Hierapolis* was deſcribed to be two fathoms deep. *Samí-Ra'ma* is repreſented in a moſt amiable light in the *Pura'na's*, as well as her conſort *Liléſwara*, or *Liléſa*.

Stephanus of *Byzantium* ſays that *Ninus* lived at a place called *Telane'*, previous to his building *Nineveh*; but this place, I believe, is not mentioned by any other author.

Ninus is with good reaſon ſuppoſed to be the *Aſſur* of Scripture, who built *Nineveh*; and *Aſſur* is obviouſly the *Is'wara* of the *Pura'na's*, with the title of *Li'léſwara*, *Li'léſa*, or *Ninus*. The word *Iſwara*, though generally applied to deities, is alſo given in the *Pura'na's* to Kings; it ſignifies *Lord* and *Sovereign*.

With reſpect to the monſtrous origin of *Be'léſa*, and the thirty-one *Phalli*; my *Pandit*, who is an

astronomer, suspects it to be an attempt to reconcile the course of the moon to that of the sun, by dividing the synodical revolution into thirty-one parts, which may represent also three hundred and ten years. As this correction is now disused, he could give me no further information concerning it. To the event related is ascribed the origin of the *Linga* or *Phallus*, and of its worship: it is said to have happened on the banks of the *Cumud-vati*, or *Euphrates*; and the first *Phallus*, under the name of *Baleswara-Linga*, was erected on its banks. This is confirmed by *Diodorus Siculus*, who says that *Semiramis* brought an *Obelisk* from the mountains of *Armenia*, and erected it in the most conspicuous part of *Babylon*: it was 150 feet high, and is reckoned, by some author, as one of the seven wonders of the world *. The *Jews* in their *Talmud* allude to something of this kind; speaking of the different sorts of earths, of which the body of *Adam* was formed: they say that the earth which composed his generative parts, was brought from *Babylonia*.

The next place of worship is the *st'han* of *Anáya'-sa-de'vi'*: this, I think, is obviously the *Heiron tes Anaias* of *Strabo*, or the temple of the goddess *Anaia*, or *Anaias*, with its burning spring of *Naphtha*. They are upon a hillock, called *Corcura* by the antients, and now known by the name of *Corcoor*: it is near *Kerkook*, and to the eastward of the *Tigris*. To this day it is visited by pilgrims from *India*; and I have been fortunate enough to meet with four or five who had paid their devotions in this holy place. I consulted them separately; and their accounts were as satisfactory as could be expected. They call it *Jua'la'muc'hi*, or the flaming mouth.

This conflagration is minutely described by *Diodorus Siculus**, who says, that in former times a mon-

* *Diod. Sic.* lib. 3. cap. 4. † *Ibid.* cap. 5.

ſter called *Alcida*, who vomited flames, appeared in *Phrygia*; hence ſpreading along mount *Taurus*, the conflagration burnt down all the woods, as far as *India*: then, with a retrograde courſe, ſwept the foreſts of mount *Liban*, and extended as far as *Egypt* and *Africa*; at laſt a ſtop was put to it by *Minerva*.

The *Phrygians* remembered well this conflagration and the flood which followed it; but as they could not conceive that it could originate from a benevolent Goddeſs, they transformed her into a monſter, called *Alcida*. *Alcida* however is an old *Greek* word, implying ſtrength and power, and is therefore ſynonimous with *Sa'ca* or *Sacta'-devi*, the principal form of *Sami'-Ra'ma'*, and other manifeſtations of the female part of nature.

Indeed, the names and titles of moſt of the *Babylonian* deities are pure *Sanſcrit*: and many of them are worſhipped to this day in *India*, or at leaſt their legends are to be found in the *Pura'na's*.

Thus *Semiramis* is derived from *Sami-Rámeſi*, or *Sa'mi-Rama*, and *Sa'mi-Ra'ma'-dévi*.

Militta from *Militia-Devi*, becauſe ſhe brings people together *(Connuba)*.

Shacka, or *Saca*, is from the *Sanſcrit Sácta-dévi*, pronounced *Sácá* in the vulgar dialects: it implies ſtrength and power.

Slamba, or *Salambo*, is from *Sarwámbá*, often pronounced *Salwámba*: it ſignifies the mother of all: and ſhe is the *Magna Mater* of the weſtern mythologiſts.

Dévi is called alſo *A'ntargati*, or *Antargatá*, becauſe ſhe reſides within the body, or in the heart, and thereby gives ſtrength and courage. This is the Goddeſs of Victory in *India*, and they have no other: it is declared in the *Puránás*, that ſhe was called *A'ntraſt'hi* (a title of the ſame import with the former) in the foreſts of *Viſhála-van*, on the banks of the river *Tamaſa*, in *Chándra-duip*: from *A'ntraſt'hi* the old *Britons*, or rather the *Romans*, made *Andraſte*.

The *Babylonian* Goddeſs was called alſo the *Queen of Heaven*; and to this day a form of *Devi*, with the title of *Sverga rádni dévi*, or *Devi*, *Queen of Heaven*, is worſhipped in *India*.

Rhea is from *Hriyá-devi*, or the baſhful or modeſt Goddeſs.

Rakh is from *Rácéſwara*: a name of *Lunus*, from one of his favourite wives called *Raca*: it ſignifies alſo the full orb of the Moon.

Nabo, or *Nebo*, is *I'ſwara*, with the title of *Nava*, or *Naba*, the celeſtial.

Nargal is from *Anargaléſwara*; that is, he who is independent.

Adram-melech is from *A'dharm-eſwara*; for *I'ſwara* and *Melech*, in the *Chaldæan* language, are ſynonimous.

Adharmeſwara is thus called, becauſe he puniſhes thoſe who deviate from the paths of juſtice and rectitude.

Anam-melech is from *Anam-eſwara* or *I'ſwara*,

who, though above all, behaves to all with meekneſs and affability.

Nimrod is from *Nima-Rudra*, becauſe *Rudra*, or *Mahá-déva*, gave him half of his own ſtrength.

Vahni-ſt'hán, called alſo *Agni-ſt'hán*, is ſaid in ſome *Puránás* to be in *Cuſha-duíp*; and in others, to be on the borders of it. It includes all the mountainous country from *Phrygia* to *Herat*. *Vahni-ſt'hán* and *Agni-ſt'hán* are denominations of the ſame import, and ſignify the country or ſeat of fire, from the numerous volcanoes and burning ſprings which are to be found all along this extenſive range of mountains. The preſent *Azar-Báiján* is part of it, and may be called *Vahni-ſt'hán* proper. *Azar*, in the old *Perſian*, ſignifies fire; and *Báiján*, a mine or ſpring. This information was given to me by Mr. *Duncan*, reſident of *Benares*, who was ſo kind as to conſult on this ſubject with *Mehdi-Ali-Khán*, one of the *Aumils* of the *Zemindary* of *Benares*. He is a native of *Khoraſſan*, and well acquainted with the antiquities of his own country, and of *Iran* in general. According to him, the principal *Báiján*, or ſpring of fire, is at a place called *Baut-Cubeh* *, in *Azar-Báiján*. *Vahni-ſt'hán* is called alſo *Vahni-vyápta*, from the immenſe quantity of fire collected in that country. There are many places of worſhip remaining throughout *Iran*, ſtill reſorted to by devout pilgrims. The principal are *Balk* and the *Pyræum*, near *Herat*. *Hingláz*, or *Anclooje*, near the ſea, and about eighty miles from the mouth of the *Indus*: it is now deſerted; but there remain twenty-four temples of *Bhaváni*. This place, however, is ſeldom viſited, on account of the difficulties attending the journey to it.

* It is vulgarly called *Baku*.

Ganga'wa'z, near *Congo*, on the *Persian* Gulph, another place of pilgrimage, where are many caves, with springs in the mountains.

The *st'ha'n* of *Calyana-Ra'ya* and *Govinda-Ra'ya*, two incarnations of *Vishnu*, is in the centre of *Bussora*, on the banks of the *Euphrates*; and there are two statues carefully concealed from the sight of the *Mussulmans*.

Ana'ya'sa'-de'vi-st'ha'n has been already mentioned; and the great *Jua'la'-much'hi* is the designation of the springs of *Naphtha*, near *Baku*.

There is also another *Hindu* place of worship at *Baharein (El Katif)* and another at *Astrachan*, where the few *Hindus* who live there worship the *Volga*, under the name of *Súrya-muc'hí-Ganga*; the legends relating to this famous river are to be found in the *Pu-ra'na's*, and confirm the information of the pilgrims who have visited these holy places. There are still many *Hindus* dispersed through that immense country; they are unknown to the *Musselmans*; and they pass for *Guebris*, as they call them here, or *Parsis*. There is now at *Benares* a *Bra'hman* of the name of *De'vi da's*, who is a native of *Mesched*; he was introduced lately to my acquaintance by Mr. *Duncan*; and he informed me that it was supposed there were about 2000 families of *Hindus* in *Khorassan*; that they called themselves *Hindi*, and are known to the *Musselmans* of the country under that appellation.

This, in my opinion, accounts for the whole country to the south of the *Caspian Sea*, from *Khorassan* and *Arrokhage*, as far as the *Black Sea* being called *India* by the antients; and its inhabitants in various places *Sindi*: it is implicitly confirmed by the *Pura'na's*, in which it is said that the *Su'rva-muc'hi-Ganga*,

or *Volga*, falls into the *Sea* of *Sind*. The *Hindus* near *Baku* and at *Aſtrachan*, call it the *New Sea*, becauſe they ſay it did not exiſt formerly. They have legends about it, which, however, my learned friend *Vidhya'na'th* could not find in the *Pura'na's*.

According to the pilgrims I have conſulted, there are about twenty or thirty families of *Hindus* at *Balk*; and *Euſebius* informs us, that there were *Hindus* in *Bactriana* in his time. There are as many families at *Ga'nga'wa'z*, or *Congo*; about one hundred at *Buſſora*; and a few at *Baharein*: theſe informed *Purá'na'puri*, a *Yóyi* and famous traveller, called alſo *Ura'hwabá'hu*, becauſe he always keeps his hands elevated above his head, that formerly they correſponded and traded with other *Hindus* on the banks of the river *Nila*, in the country of *Miſr*; and that they had once a houſe or factory at *Cairo*; but that, on account of the oppreſſion of the *Turks* and the roving *Arabs*, there had been no intercourſe between them for ſeveral generations. There are no *Hindus* at *Anđ'ya'ſá'dévì*, or *Corcoor*; but they compute a large number in the vicinity of *Baku*, and *Derbend*. The *Shroffs* at *Sa'ma'khi* are *Banyans* or *Hindus*, according to the Dictionary of Commerce, and of *Trevoux*, as cited in the *French* Encyclopædia *.

The *Cubáni's* who live near *Derbend* are *Hindus*, as my friend *Purani-Puri* was told at *Baku* and *Aſtrachan*, in his way to *Moſcow*; and their *Bráhmens* are ſaid to be very learned; but, as he very properly obſerved, this ought to be underſtood relatively on a compariſon with the other *Hindus* in *Perſia*, who are extremely ignorant.

* Ad vocem *Cheraffs*.

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His relation is in a great meaſure confirmed by *Strahlenberg*, who calls them *Cuba Cubatzin*; and ſays that they live near *Derbend*, are a diſtinct people, ſuppoſed to be *Jews*, and to ſpeak ſtill the *Hebrew* language.

The *Sanſcrit* characters might eaſily be miſtaken for the black *Hebrew* letters by ſuperficial obſervers, or perſons little converſant in ſubjects of this nature.

The *Arani*, figuratively called the daughter of the *Sami*-tree, and the mother of fire, is a cubic piece of wood, about five inches in diameter, with a ſmall hole in the upper part. A ſtick of the ſame ſort of wood is placed in this cavity, and put in motion by a ſtring held by two men, or fixed to a bow. The friction ſoon produces fire, which is uſed for all religious purpoſes, and alſo for dreſſing food. Every *Brahmen* ought to have an *Arani*; and when they cannot procure one from the *Sami*-tree, which is rather ſcarce in this part of *India*, they make it with the wood of the *Aſvatt'ha*, or *Pippala*-tree. This is alſo a ſacred tree, and they diſtinguiſh two ſpecies of it; the *Pippala*, called in the vulgar dialects *Pipal*, and the *Chalatpalaſha*. The leaves of this laſt are larger, but the fruit is ſmaller, and not ſo numerous as in the former ſpecies. It is called *Chalat palaſha*, from the tremulous motion of its leaves. It is very common in the hills; and the vulgar name for it is *Pópala*; from which I ſuppoſe is derived the *Latin* word *Populus*; for it is certainly the trembling *Poplar* or *Aſpen*-tree.

The feſtival of *Semiramis* falls always on the tenth day of the lunar month of *Aſwina*, which this year coincided with the fourth of *October*. On this day lamps are lighted in the evening under the *Sami*-tree; offerings are made of rice and flowers, and ſome-

times ſtrong liquors; the votaries ſing the praiſe of *S'amí-Ramá-deví* and the *Samí*-tree; and having worſhipped them, carry away ſome of the leaves of the tree, and earth from the roots, which they keep carefully in their houſes till the return of the feſtival of *Semiramis* in the enſuing year.

XXVII.

ON THE ANDAMAN ISLANDS.

BY LIEUT. R. H. COLEBROOKE.

THE *Andaman Iſlands* are ſituated on the eaſtern ſide of the bay of *Bengal**, extending from north latitude 10° 32′ to 13° 40′. Their longitude is from 92° 6′ to 61° 59′ eaſt of *Greenwich*. The *Great Andaman*, or that portion of the land hitherto ſo called, is about one hundred-and-forty *Britiſh* miles in length, but not more than twenty in the broadeſt parts. Its coaſts are indented by ſeveral deep bays, affording excellent harbours, and it is interſected by many vaſt inlets and creeks, one of which has been found to run quite through, and is navigable for ſmall veſſels. The *Little Andaman* is the moſt ſoutherly of the two, and lies within thirty leagues of the

* It is perhaps a wonder, that iſlands ſo extenſive, and lying in the track of ſo many ſhips, ſhould have been, till of late years, ſo little known; that while the countries by which they are almoſt encircled, have been increaſing in population and wealth, having been from time to time immemorial in a ſtate of a tolerable civilization, theſe iſlands ſhould have remained in a ſtate of nature, and their inhabitants plunged in the groſſeſt ignorance and barbarity.

The wild appearance of the country, and the untractable and ferocious diſpoſition of the natives, have been the cauſes, probably, which have deterred navigators from frequenting them; and they have juſtly dreaded a ſhipwreck at the *Andamaus* more than the danger of foundering in the ocean; for although it is highly probable, that in the courſe of time many veſſels have been wrecked upon their coaſts, an inſtance does not occur of any of the crews being ſaved, or of a ſingle perſon returning to give any account of ſuch a diſaſter.

iſland *Carnicobar*. Its length is 28 miles by 17 in breadth, being more compact, but does not afford any harbour, although tolerable anchorage is found near its ſhores. The former is ſurrounded by a great number of ſmaller iſlands.

The ſhores of the main iſland, and indeed of all the reſt, are in ſome parts rocky, and in a few places are lined with a ſmooth and ſandy beach, where boats may eaſily land. The interior ſhores of the bays and creeks are almoſt invariably lined with mangroves, prickly fern, and a ſpecies of wild rattan; while the inland parts are covered with a variety of tall trees, darkened by the intermixture of creepers, paraſite-plants, and underwood; which form altogether a vaſt and almoſt impervious foreſt, ſpreading over the whole country. The ſmaller iſlands are equally covered with wood; they moſtly contain hills of a moderate height; but the main iſland is diſtinguiſhed by a mountain of prodigious bulk, called from its ſhape the Saddle-Peak: it is viſible in clear weather at the diſtance of twenty-five leagues, being nearly two thouſand four hundred feet in perpendicular height. There are no rivers of any ſize upon theſe iſlands, but a number of ſmall rills pour down from the mountains, affording good water, and exhibiting in their deſcent over the rocks a variety of little caſcades, which are overſhaded by the ſuperincumbent woods.

The ſoil is various in different parts of theſe iſlands *; conſiſting of black rich mould, white and dark coloured clays, light ſandy ſoil, clay mixed with pebbles of different colours, red and yellow earth; but the black mould is moſt common. Some white cliffs

* I am indebted to Major *Kyd* and Captain *Archibald Blair* for many of the ſubſequent remarks. The latter was employed by government in ſurveying theſe iſlands, and has the credit of having furniſhed the firſt complete and correct Chart of the *Andamans*.

are met with along the ſhores, which appear to have been originally clay, with a mixture of ſand, hardened by time into the conſiſtence of ſtone, but might be cut, and would probably anſwer for building. Near the ſouthern extremity of the great iſland, where it is mountainous and rocky, ſome indications of minerals have appeared, particularly of tin. There is alſo a kind of freeſtone, containing a yellow ſhining ſpar, reſembling gold-duſt. Some of the hills bordering the coaſts exhibit blue ſhiſtous ſtrata at their baſes, with the breſcia, or pudding-ſtone; and ſome ſpecimens of red ochre have been found, not unlike cinnabar.

The extenſive foreſts with which theſe iſlands are over-run, produce a variety of trees fit for building, and many other purpoſes. The moſt common are the poon, dammer, and oil-trees; red wood, ebony, cotton-tree, and *buddaum* or almond-tree; ſoondry, chingry, and bindy; *Alexandrian* laurel, poplar, and a tree reſembling the ſattin-wood; bamboos, and plaas, with which the natives make their bows; cutch, affording the extract called *Terra Japonica*; the *Melori*, or *Nicobar* bread-fruit; aloes, ground rattans, and a variety of ſhrubs. A few fruit-trees have been found in a wild ſtate; but it is remarkable that cocoa-nuts, ſo common in other tropical countries, are here almoſt unknown. Many of the trees afford timbers and planks fit for the conſtruction of ſhips, and others might anſwer for maſts. A tree grows here to an enormous ſize, one having been found to meaſure thirty feet in circumference, producing a very rich dye, that might be of uſe in manufactures.

The only quadrupeds yet diſcovered in theſe iſlands are wild hogs, monkeys, and rats. Guanas, and various reptiles abound; among the latter is the green

ſnake, very venomous; centipedes of ten inches long, and ſcorpions.

A variety of birds are ſeen in the woods; the moſt common are pigeons, crows, paroquets, king fiſhers, curlews, fiſh-hawks, and owls. A ſpecies of humming bird, whoſe notes are not unlike the cuckoo, is frequently heard in the night.

The principal caverns and receſſes, compoſing part of the coaſt, give ſhelter to the birds that build the edible neſts: an article of commerce in the *China* market, where they are ſold at a very high price. It has been thought that theſe neſts are formed from a glutinous matter exuding from the ſides of the caverns where theſe birds, during their nidification, reſort. It is not known whether they emigrate; but the period of their incubation takes place in *December*, and continues till *May*. Not more than two white ſpotleſs eggs have been found in their neſts; but they have been further ſuppoſed to breed monthly.

The harbours and inlets from the ſea are plentifully ſtocked with a variety of fiſh; ſuch as mullets, ſoles, pomfret, rock-fiſh, ſkate, gurnards, ſardinas, roeballs, ſable, ſhad, alooſe, cockup, grobers, ſeer-fiſh, old wives, yellow tails, ſnappers, devil-fiſh, cat-fiſh, prawns, ſhrimps, cray-fiſh, and many others: a ſpecies reſembling the whale, and ſharks of an enormous ſize, are met with. A variety of ſhell-fiſh are found on the reefs, and in ſome places oyſters of an excellent quality. Of the many madrapors, coralines, zoophites, and ſhells, none have yet been diſcovered but ſuch as are found elſewhere.

The *Andaman Iſlands* are inhabited by a race of men the leaſt civilized, perhaps, in the world; being nearer

to a ſtate of nature than any people we read of. Their colour is of the darkeſt hue, their ſtature in general ſmall, and their aſpect uncouth. Their limbs are ill formed and ſlender, their bellies prominent, and, like the *Africans*, they have woolly heads*, thick lips, and

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* In this reſpect they differ from all the various tribes inhabiting the continent of *Aſia*, or its iſlands. A ſtory is ſomewhere told of a ſhip full of *African* ſlaves, of both ſexes, having been caſt away at the *Andamans*; and that having put to death their maſters and the ſhip's crew, they ſpread themſelves over, and peopled the country. This ſtory does not appear to have been well authenticated, nor have I ever met with the particular author who relates it. They have been aſſerted by ſome to be cannibals, and by others (*vide* Captain *Hamilton*'s Voyage, and all the Geographical Dictionaries) to be a harmleſs and inoffenſive people, living chiefly on rice and vegetables. That they are cannibals has never been fully proved, although from their cruel and ſanguinary diſpoſition, great voracity, and cunning modes of lying in ambuſh, there is reaſon to ſuſpect, that in attacking ſtrangers they are frequently impelled by hunger, as they invariably put to death the unfortunate victims who fall under their hands. No poſitive inſtance, however, has been known of their eating the fleſh of their enemies; although the bodies of ſome whom they have killed, have been found mangled and torn. It would be difficult to account for their unremitting hoſtility to ſtrangers, without aſcribing this as the cauſe, unleſs the ſtory of their origin, as abovementioned, ſhould be true; in which caſe they might probably retain a tradition of having once been in a ſtate of ſlavery. This in ſome degree would account for the rancour and enmity they ſhew; and they would naturally wage perpetual war with thoſe whom they might ſuſpect were come to invade their country, or enſlave them again.

It would appear that theſe iſlands were known to the antients (ſee Major *Rennel*'s Memoirs, introduction, page xxxix.) They are mentioned, I believe, by *Marco Polo*; and in the ancient accounts of *India* and *China*, by two *Mahomedan* travellers, who went to thoſe parts in the ninth century (tranſlated from the *Arabic* by *Euſebius Renaudot*) may be ſeen the following curious account:—
"Beyond theſe two iſlands (*Nejabalus*, probably *Nicobars*) lies the "ſea of *Andaman*; the people on this coaſt eat human fleſh quite "raw; their complexion is black, their hair frizzled, their counte-"nance and eyes frightful, their feet are very large and almoſt a "cubic in length, and they go quite naked. They have no em-"barkations; if they had, they would devour all the paſſengers "they could lay hands on," &c.

flat nofes. They go quite naked, the women wearing only at times a kind of taffel, or fringe, round the middle; which is intended merely for ornament, as they do not betray any figns of bafhfulnefs when feen without it. The men are cunning, crafty, and revengeful: and frequently exprefs their averfion to ftrangers in a loud and threatening tone of voice, exhibiting various figns of defiance, and expreffing their contempt by the moft indecent geftures. At other times they appear quiet and docile, with the moft infidious intent. They will affect to enter into a friendly conference, when, after receiving with a fhow of humility whatever articles may be prefented to them, they fet up a fhout, and difcharge their arrows at the donors. On the appearance of a veffel or boat, they frequently lie in ambufh among the trees, and fend one of their gang, who is generally the oldeft among them, to the water's edge, to endeavour by friendly figns to allure the ftrangers on fhore. Should the crew venture to land without arms, they inftantly rufh out from their lurking-places, and attack them. In thefe fkirmifhes they difplay much refolution, and will fometimes plunge into the water to feize the boat; and they have been known even to difcharge their arrows while in the act of fwimming. Their mode of life is degrading to human nature, and, like brutes, their whole time is fpent in fearch of food. They have yet made no attempts to cultivate their lands, but live entirely upon what they can pick up, or kill. In the morning they rub their fkins with mud, and wallow in it like buffaloes, to prevent the annoyance of infects, and daub their woolly heads with red ochre, or cinnabar. Thus attired, they walk forth to their different occupations. The women bear the greateft part of the drudgery in collecting food, repairing to the reefs at the recefs of the tide, to pick up fhell-fifh, while the men are hunting in the woods, or wading in the water to fhoot fifh with their bows and arrows. They

are very dexterous at this extraordinary mode of fiſhing; which they practice alſo at night, by the light of a torch. In their excurſions through the woods, a wild hog ſometimes rewards their toil, and affords them a more ample repaſt. They broil their meat or fiſh over a kind of grid, made of bamboos; but uſe no ſalt, or any other ſeaſoning.

The *Andamaners* diſplay at times much colloquial vivacity, and are fond of ſinging and dancing; in which amuſements the women equally participate. Their language is rather ſmooth than guttural; and their melodies are in the nature of recitative and chorus, not unpleaſing. In dancing they may be ſaid to have improved on the ſtrange republican dance aſſerted by *Voltaire* to have been exhibited in *England*: "*Ou dancant a la ronde, chacun donne des coups de pieds* "*a ſon voiſin, et en recoit autant.*" The *Andamaners* likewiſe dance in a ring, each alternately kicking and ſlapping his own breech, *ad libitum*. Their ſalutation is performed by lifting up a leg, and ſmacking with their hand the lower part of the thigh.

Their dwellings are the moſt wretched hovels imaginable. An *Andaman* hut may be conſidered the rudeſt, and moſt imperfect attempt of the human race to procure ſhelter from the weather; and anſwers to the idea given by *Vitruvius*, of the buildings erected by the earlieſt inhabitants of the earth. Three or four ſticks are planted in the ground, and faſtened together at the top, in the form of a cone, over which a kind of thatch is formed with the branches and leaves of trees. An opening is left on one ſide, juſt large enough to creep into; and the ground beneath is ſtrewed with dried leaves, upon which they lie. In theſe huts are frequently found the ſculls of wild hogs, ſuſpended to the roofs.

Their canoes are hollowed out of the trunks of trees by means of fire and inſtruments of ſtone, having no iron in uſe amongſt them, except ſuch utenſils as they have procured from the *Europeans* and ſailors who have lately viſited theſe iſlands; or from the wrecks of veſſels formerly ſtranded on their coaſts. They uſe alſo rafts, made of bamboos to tranſport themſelves acroſs their harbours, or from one iſland to another. Their arms have already been mentioned in part, I need only add that their bows are remarkably long, and of an uncommon form; their arrows are headed with fiſh-bones, or the tuſks of wild hogs; ſometimes merely with a ſharp bit of wood, hardened in the fire; but theſe are ſufficiently deſtructive. They uſe alſo a kind of ſhield; and one or two other weapons have been ſeen amongſt them. Of their implements for fiſhing, and other purpoſes, little can be ſaid. Hand-nets of different ſizes are uſed in catching the ſmall fry; and a kind of wicker-baſket, which they carry on their backs, ſerves to depoſit whatever articles of food they can pick up. A few ſpecimens of pottery-ware have been ſeen in theſe iſlands.

The climate of the *Andaman Iſlands* is rather milder than in *Bengal.* The prevailing winds are the ſouth-weſt and north-eaſt monſoons, the former commencing in *May*, and bringing in the rains; which continue to fall with equal, if not greater, violence till *November*. At this time the north-eaſt winds begin to blow, accompanied likewiſe by ſhowers, but giving place to fair and pleaſant weather during the reſt of the year. Theſe winds vary but little, and are interrupted only at times by the land and ſea-breezes. The tides are regular, the floods ſetting in from the weſt, and riſing eight feet at the ſprings, with little variation in different parts. On the north-eaſt coaſt

it is high water at the full and change of the moon at 8° 33′. The variation of the needle is 2° 30′ eaſterly.

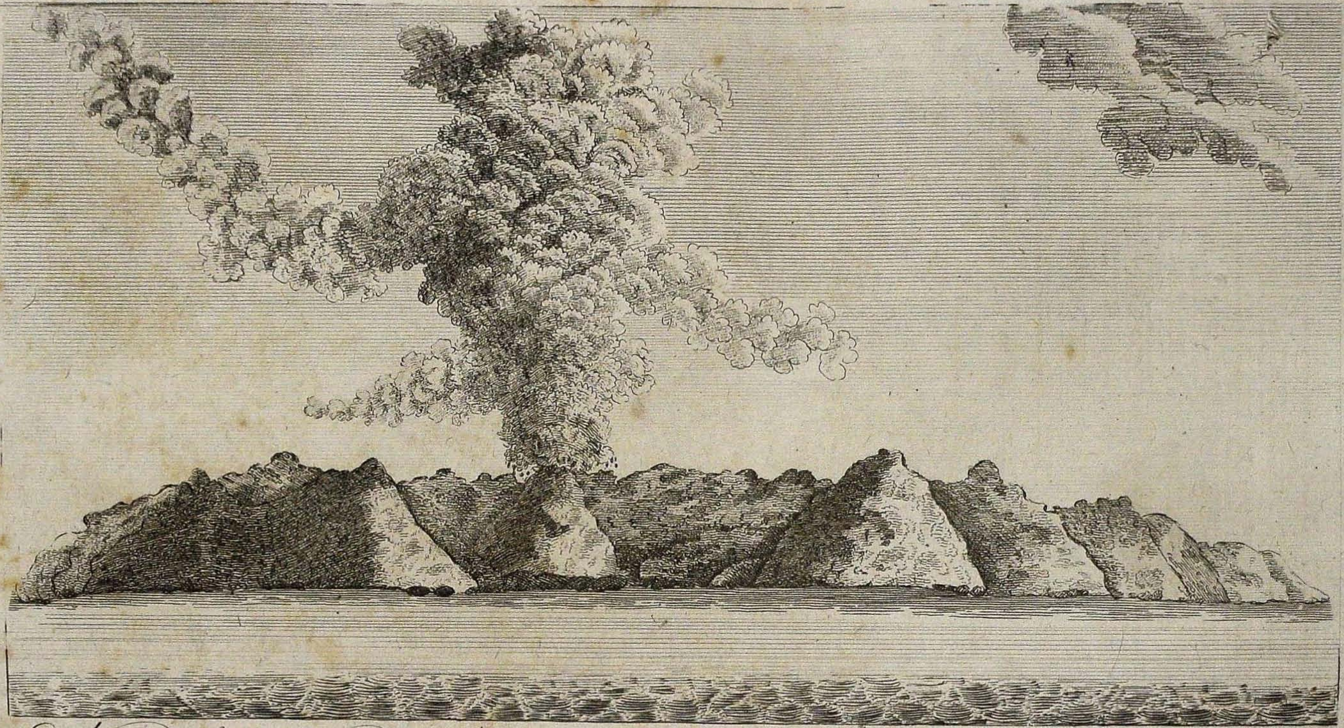
Specimen of the Andaman Language.

Andaman iſland, or native country,	Mincopie
Ant,	Ahooda
Ant, white in its winged ſtate,	Doughay
Arrow,	Buttohie
Arm,	Pilie
Bat,	Vilvila
Bamboo,	Otallie
Bangle,	Alai
Baſket,	Teregay
Black,	Cheegheooga
Blood,	Cochengohee
Bead,	Tahee
To Beat,	Ingo taheya
Belly,	Napoy
To bind,	Totoba oto goley toha
Bird,	Lohay
To bite,	Moepaka
Boat,	Loccay
Boar,	Stohee
Bow,	Tongie
Bow-ſtring,	Geetahie
Breaſt,	Cah
Bone,	Geetongay
Charcoal,	Wehée
Chin,	Pitang
Cold,	Choma
Cocoa-nut,	Bollatee
Cotton cloth,	Pangapee
To cough,	Ingotahey
Crow,	Nohay
To cut,	Hojeeha
Door,	Tang
To drink	Meengohee
Earth,	Totongnangee
Ear,	Quaka
To eat,	Ingelholiah
Elbow,	Mohalajabay
Eye,	Jabay
Finger,	Momay
Fire,	Mona
Fiſh,	Nabohee
Fiſh-hook,	Atabea
Fleſh,	Woohee
Foot,	Gookee
Friend,	Padoo
Frog,	Etolay
Goat,	Kokee
To go,	Ooſſeema
Graſs,	Tohobee
Hair,	Ottee
Hand,	Gonie *or* Monie
Head,	Tabay
Money	Lorkay
Hot,	Hooloo
Houſe	Beaday
Jack Fruit,	Abay
Jackall,	Omay
Iron, or any Metal,	Dohie
Kiſs,	Itolie
Knee,	Ingolay
To laugh,	Onkeomai
Leaf of a Tree,	Tongolie
Leg,	Chigie

Man, - -	Camolan
Moon, - -	Tabie
Muſequeto, -	Hohenangee
Mouth, - -	Morna
Nail, - -	Mobejedanga
Neck, - -	Tohie
Net, - -	Botolee
Noſe, - -	Mellee
Paddle, or Oar,	Mecal
Pain, - -	Alooda
Palm, - -	Dolai
Paper, - -	Pangpoy
Pike, - -	Woohalay
To pinch, -	Ingee Genecha
Plantain-tree,	Cholellee
Pot, - -	Bootchoobie
To pull,	Totobati Gehooa
Rain, - -	Oye,
Red, - -	Gheallop
Road, - -	Echollee
To run, - -	Gohabela
To ſcratch,	Inkahey aha
Seed, - -	Kheetongay
Sheep,* -	Neena

Smoke, - -	Boleenee
To ſing, -	Gokobay
To ſit down,	Gongtohee
Shadow, -	Tangtohee
To ſleep, -	Comoha
To ſneeze, -	Oh-cheka
To ſpit, -	Inkahoangy
To ſwim, -	Quaah
To ſwallow,	Beebay
Sky, - -	Madamo
Star, - -	Chelobay
Stone, - -	Woolay
Sun, - -	Ahay
To take up,	Catoha
Thigh, -	Poye
Teeth, -	Mahoy
Tongue, -	Talie
Thunder and lightning,	Maufay - Maccee
To waſh, -	Inga doha
Waſp, - -	Bohomakee
To walk, -	Boony-jaoa
Water, - -	Migway
To weep,	Oana-wannah
Wind, - -	Tomjamay
Wood, - -	Tanghee.

* It may appear ſurpriſing that they ſhould have names for animals that are not found in their iſlands. This circumſtance may tend to confirm the ſtory of their origin.



View of the Volcano on Barren Island bear.^g East one Mile distant

XXVIII.

ON BARREN ISLAND, AND ITS VOLCANO.

BY LIEUT. R. H. COLEBROOKE.

ABOUT fifteen leagues to the eaſtward of the *Andaman Iſlands* lies an iſland which navigators, from its appearance, have juſtly called *Barren.* On the 12th of *May* 1787, Captain *Kyd* and myſelf, being on board the *Trial* Snow, on a voyage to *Pulo Penang*, *Barren Iſland* in ſight, bearing SSW. ſeven leagues diſtant, ſaw a column of ſmoke aſcending from its ſummit, and by the help of our glaſſes plainly perceived it to ariſe from a hill nearly in its center, around which appeared an extenſive valley, or crater: but being becalmed, we could not approach nearer to examine it.

The following account of this remarkable iſland is given by Captain *Blair*, in his report of the Survey of the *Andaman Iſlands*.

" I left that coaſt *March* the 21ſt, and landed on " *Barren Iſland* on the 24th. — The volcano was in " a violent ſtate of eruption, burſting out immenſe " volumes of ſmoke, and frequently ſhowers of red " hot ſtones. Some were of a ſize to weigh three or " four tons, and had been thrown ſome hundred " yards paſt the foot of the cone. There were two

" or three eruptions while we were cloſe to it; ſeve-
" ral of the red hot ſtones rolled down the ſides of
" the cone, and bounded a conſiderable way beyond
" us. The baſe of the cone is the loweſt part of the
" iſland, and very little higher than the level of the
" ſea. It arriſes with an acclivity of 32° 17' to the
" height of 1800 feet nearly, which is alſo the eleva-
" tion of the other parts of the iſland.

" From its preſent figure, it may be conjectured
" that the volcano firſt broke out near the centre of
" the iſland, or rather towards the north-weſt; and
" in a long proceſs of time by diſcharging, conſum-
" ing, and undermining, has brought it to the pre-
" ſent very extraordinary form, of which a very cor-
" rect drawing by Lieutenant *Wales*, will impreſs a
" diſtant idea.

" Thoſe parts of the iſland that are diſtant from
" the volcano, are thinly covered with withered ſhrubs
" and blaſted trees. It is ſituated in latitude 12° 15′
" north, and fifteen leagues eaſt of the northernmoſt
" iſland of the *Archipelago* *, and may be ſeen at the
" diſtance of twelve leagues in clear weather. A
" quarter of a mile from the ſhore, there is no ground
" with 150 fathoms of line."

REMARK.

From the very ſingular and uncommon appearance of this iſland, it might be conjectured that it has been thrown up entirely from the ſea, by the action of ſubterranean fire. Perhaps, but a few centuries ago, it had not reared itſelf above the waves; but might have been gradually emerging from the bottom of the ocean long before it became viſible; till

* The eaſtermoſt cluſter of the *Andaman Iſlands*.

at length it reached the ſurface, when the air would naturally aſſiſt the operation of the fire that had been ſtruggling for ages to get vent, and it would then burſt forth. The cone or volcano would rapidly increaſe in bulk, from the continual diſcharge of lava and combuſtible matter; and the more violent eruptions which might have enſued at times, when it would throw up its contents to a greater elevation and diſtance, might have produced that circular and nearly equidiſtant ridge of land we ſee around.

If this conjecture ſhould gain credit, we may ſuppoſe not only many iſlands, but a great portion of the habitable globe, to have been thrown up by volcanos, which are now moſtly extinguiſhed. Many hills and iſlands now clothed with verdure, bear evident marks of having once been in this ſtate. A ground plan of *Barren Iſland* would ſo exactly reſemble ſome of the lunar ſpots, as ſeen through a good teleſcope when their ſhadows are ſtrong, that I cannot help thinking there are alſo many more volcanos in the moon than have yet been diſcovered by a celebrated modern aſtronomer *. Thoſe remarkable valleys, or cavities, diſcernible on her diſk, have many of them a ſingle hill in their center, and are ſurrounded by a circular ridge of a ſimilar appearance.

Query. May not the moon be ſurrounded by an atmoſphere of pure air, which differing eſſentially in its properties from the atmoſphere of our earth, might account for ſome of the phenomena of her appearance to us? An atmoſphere of this ſort might be ſo tranſparent as not to refract the rays of light in a ſenſible degree, or to produce the leaſt change in the appearance of a ſtar paſſing through it when an occultation

* *Herſchell.*

TANJORE MAHARAJA SERFOJI'S S...

is obſerved. At the ſame time, it would increaſe in a high degree, the inflammability and combuſtion of matter, ſo as to produce volcanos; and if we ſuppoſe the moon to have neither ſeas nor vegetation on her ſurface, the ſun's light would be more ſtrongly reflected than from the earth, where the rays are liable to abſorption by water and vegetables.

XXIX.

Extract from a Diary of a Journey over the Great Desart, from Aleppo to Bussora, in April 1782. *Communicated by Sir* WILLIAM DUNKIN, *and published with a View to direct the Attention of future Travellers to the Ruins described in it.*

APRIL 16.

SET off at five in the morning; encamped at five in the evening; the day intensely hot; the soil in general sandy; some few shrubs and bushes, but now quite brown, and so dry, that with the least touch they fall to powder; many stalks of lavender and rosemary; and in very dry red sand several scarlet tulips; other sorts new to me, one of a singular kind, in colour and smell like a yellow lupin, but in figure like the cone of a fir-tree, from ten to twelve inches long.

After about two hours in this sort of country, the ground appeared more verdant and firm; we then came to some very extraordinary ruins our *Shaikh* had seen, but never had approached them before; we prevailed on him; he called the place *Castrohuoin*; another *Arab* called it *Calmay*; our *Armenians*, who interpreted for us in very bad *Italian*, called it *Castroduo fratilli* (I try to give the names from their mode of pronouncing); what we first saw was a square, each side about 400 yards long. The walls forty feet high, yet entire in many places; at each angle there is a circular tower, two others in each of the sides; they rise much higher than the walls; the towers and the walls constructed with very large blocks of cut stone. To what use the hollow of the square had been applied, I could form no conjecture: in its im-

menſe blocks of cut ſtone, and ſegments of arches of different dimenſions, tumbled together in monſtrous heaps. Near to the gateway by which we entered, two arches remain perfect, a third nearly ſo; they were probably carried all along the inſide of (but diſtinct at leaſt twenty feet from) the wall. Theſe arches ſpring from very ſlender pillars, each pillar a ſingle ſhaft; the arches are nearly ſemicircular, of the ſame beautiful white ſtones as the pillars. About a quarter of a mile from this ſquare there is another, which appears to be a fourth part leſs; the entrance into this is under the loftieſt as well as the wideſt arch of ſtone I ever ſaw: I had no means of meaſuring, which I much regretted: I cannot draw, which I regretted much more. The proportions of the pillars, and of the arch which they ſupport, conveyed to me ſomething more juſt and beautiful than I can deſcribe. The inſide of the arch is richly ornamented with ſculpture; at the ſides there are niches, I ſuppoſe, for ſtatues; the outer face of the building is compoſed of great blocks of ſtone as the greater ſquare; and in many places yet entire, appear to be as well chiſſeled and jointed as the beſt conſtructed marble building I ever ſaw, even at *Venice*. The height of the wall ſeems to be equal to that of the greateſt ſquare; the thickneſs, which from ſome breaches quite through may be obſerved, from ſeven to eight feet, all through of the ſame ſtone, with little, if any, cement: the number and diſpoſition of the towers the ſame as in the other; but in this, where the towers riſe above the wall, they are more ornamented; two circles or bands of ſculpture at equal diſtances appear relieved from the body of each tower: but as all the tops are broken off, I could not gueſs how they had been cloſed. The ſculpture on the inſide of the great arch of entrance, and on many of the fragments of proſtrated pillars,

appear like those of Mr. *Wood*'s plates of the ruins of *Palmyra*. Over the entrance-arch on the inside, are some remains of an inscription in *Arabic*; but so defaced, that our *Shaikh*, who reads and writes *Arabic*, could not make out one word. All along the inside of this square, arches, formed of the finest brick, are constructed; they project from the wall about thirty feet, and are about twenty feet high over the arches; and close up to the wall is a platform of earth perfectly level, and now covered with rich and verdant herbage. No vestige of buildings appear in the hollow of this square, but many fragments of pillars lie in ruins; some are of brick, and so cemented, that it must be as difficult to separate their parts as if they were solid blocks of stone. There are no openings in the walls from which any thing could have been discharged; in the towers there are openings, at regular distances, which seem to have been designed to admit light only: not for any hostile purpose. Equidistant from each of the squares is a building of the same sort of stone, about fifteen feet; though it appears to have been much higher, it is still considerably more lofty than the other buildings: the stairs by which this was ascended appear perfect from about twelve feet above the ground; what were lower, now a heap of rubbish; there does not remain the appearance of any communication between this and the other buildings; all the interjacent ground is level, and now verdant; no stream or well appears nearer than the well we stopt at yesterday, about six hours from hence. If this district could be supplied with water, it would be rich indeed; for several miles onward we thought we discovered the remains of trenches or cuts for the conducting of water over the plain. The *Arabs* were entirely ignorant respecting these extraordinary buildings; when, or by whom erected, or when destroyed. The *Shaikh* hurried us away, very much dissatisfied that we had lost so much time; he swears he never will come near it

again: the distance from *Aleppo* is six days journey. The *Shaikh* says that we are now about forty miles from *Palmyra*, which is on our right, and about fifty from the *Euphrates*, on our left. No person at *Aleppo* gave me any hint of such a place. The gentlemen of our factory at *Bussora* had never heard of it.

XXX.

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL. (403)

XXX.

PROSOPIS ACULEATA. Kœnig.

Tshamie of the Hindus in the Northern Circars.

BY DOCTOR ROXBURGH.

THIS grows to be a pretty large tree, is a native of most parts of the coast, chiefly of low lands at a considerable distance from the sea, and may be only a variety of *P. Spicigera*, for the thorns are in this sometimes wanting; it flowers during the cold, and beginning of the hot seasons.

Trunk tolerably erect, bark deeply cracked, dirty ash-colour.

Branches irregular, very numerous, forming a pretty large shady tree.

Prickles scattered over the small branches; in some trees wanting.

Leaves alternate, generally bipinnate, from two to three inches long; pinnæ from one to four, when in pairs opposite, and have a gland between their insertions.

Leaflets opposite, from seven to ten pair, obliquely lanced, smooth, entire, about half an inch long, and one-sixth broad.

Stipules none.

Spikes several, axillary, filiform, nearly erect.

Bracts minute, one-flowered, falling.

Flowers numerous, small, yellow, single, approximated.

Calyx below, five-toothed.

Filaments united at the baſe. *Anthers* incumbent, a white gland on the apex of each, which falls off ſoon after the flower expands. *Style* crooked. *Stigma* ſimple.

Legume long, pendulous, not *inflated.*

Seeds many, lodged in a brown mealy ſubſtance.

The pod of this tree is the only part uſed. It is about an inch in circumference, and from ſix to twelve long; when ripe, brown, ſmooth, and contains, beſide the ſeeds, a large quantity of a brown mealy ſubſtance, which the natives eat; its taſte is ſweetiſh and agreeable; it may therefore be compared to the *Spaniſh Algaroba*, or locuſt-tree. *(Ceratonia Siliqua, Linn.)*

NOTE.

In compliance with *Dr. Kœnig*'s opinion, I have called this a *Proſopis*, though I am aware that the antheral glands give it a claim to the genus Adenanthera.

TO THE

RIGHT HON. SIR JOHN SHORE, BART.

GOVERNOR-GENERAL,

AND

PRESIDENT OF THE ASIATIC SOCIETY.

DEAR SIR,

I HAVE had from Mr. *Goldingham* (one of the Honourable Company's astronomers at *Fort Saint George*, a person of much ingenuity, and who applies himself to the study of antiquities) some drawings taken from the cave on the island of *Elephanta:* they are the most accurate of any I have seen, and accompanied with a correct description. This gentleman argues ably in favour of its having been an *Hindu* temple; yet I cannot assent to his opinion. The immense excavations cut out of the solid rocks at the *Elephanta*, and other caves of the like nature on the island of *Salsette*, appear to me operations of too great labour to have been executed by the hands of so feeble and effeminate a race as the aborigines of *India* have generally been held to be, and still continue: and the few figures that yet remain entire, represent persons totally distinct in exterior from the present *Hindus*, being of a gigantic size, having large prominent faces, and bearing some resemblance to the *Abyssinians*, who inhabit the country on the west side of the *Red Sea*, opposite to *Arabia*. There is no tradition of these caves having been frequented by the *Hindus* as places of worship; and at this period no *poojah* is performed at any of them; and they are scarcely ever visited by the natives. I recollect particularly, that *Ragonath Row*, when at *Bombay*, did not at all hold them in any degree of veneration.

I flatter myſelf that you, Sir, will agree with me in thinking the accompanying Memoir deſerving of being inſerted in our proceedings.

Mr. *Goldingham* acquaints me, that he has paid two viſits to ſome curious remains of antiquity, about thirty-five miles ſoutherly of *Madras*, commonly known by the name of the *Seven Pagodas*. He promiſes to tranſmit to me his remarks on theſe curioſities, with copies of the inſcriptions, which are in characters unknown to the people of the diſtrict. He declares himſelf highly ambitious of the favour of being admitted into our Society; and I ſhall be much gratified in being inſtrumental to his obtaining that favour, from a conviction that he will greatly add to our ſtock of information, and prove an uſeful member.

I cannot conclude an addreſs to you, Sir, as the worthy ſucceſſor of the gentleman who lately preſided over our Society with ſo much credit to himſelf and benefit to the public, without adverting to the memory of Sir *William Jones*, whoſe univerſal ſcience and ardent zeal for diffuſing knowledge, I have had ſo many occaſions to admire during the courſe of an acquaintance of twenty-five years.

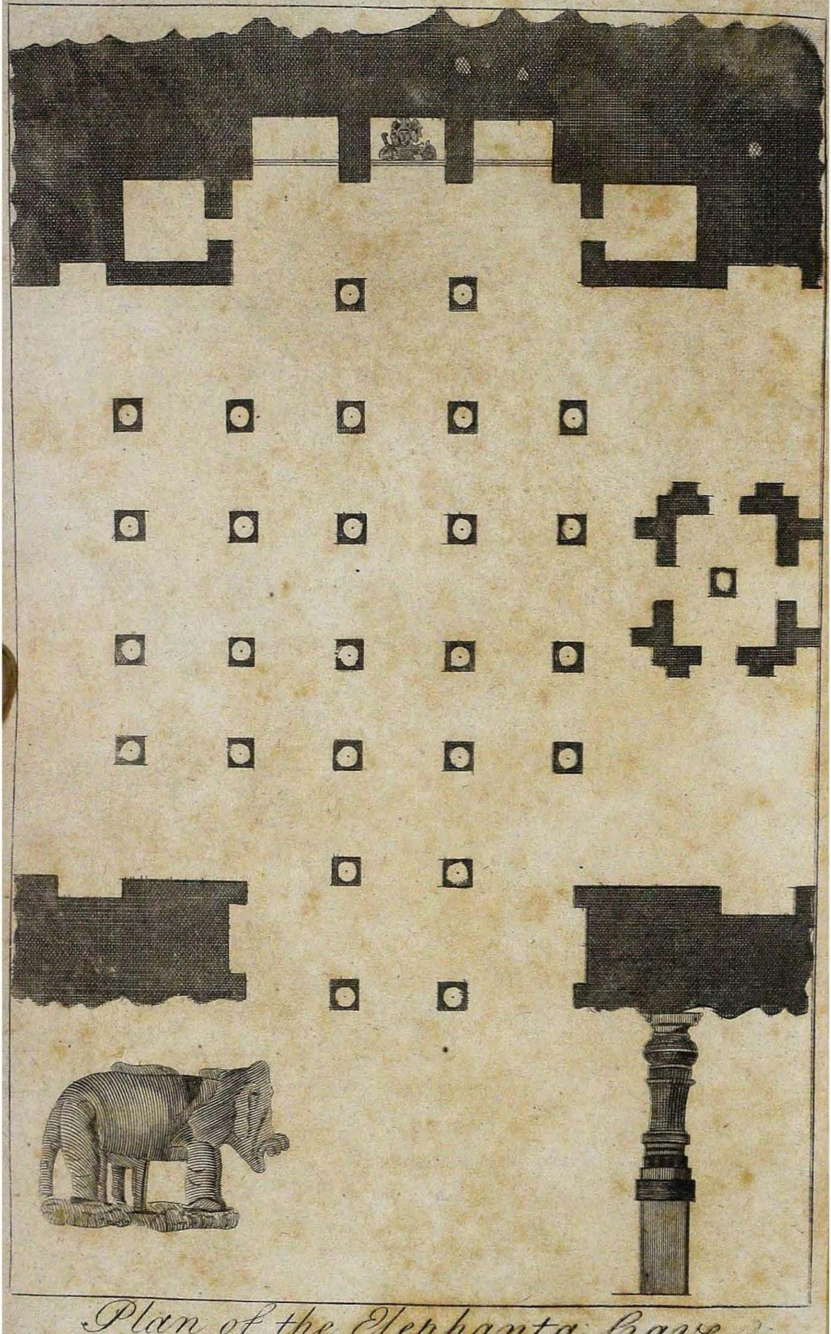
I have the honour to be, with the greateſt reſpect,

Dear Sir,

Your moſt faithful and moſt obedient ſervant,

J. Carnac.

Calcutta,
29th July, 1795.



Plan of the Elephanta Cave

Sculpture on the Wall, at the upper End of the Cave, in the Island of Elephanta.

MAHARAJA SERFOJI'S SARASWATI MAHAL, TANJORE

XXXI.

SOME ACCOUNT OF THE CAVE

IN THE ISLAND OF ELEPHANTA.

BY J. GOLDINGHAM, ESQ.

THE *Elephanta Cave,* which is ſituated in a ſmall iſland in the harbour of *Bombay,* has deſervedly attracted the attention of the curious; an elephant of black ſtone, large as the life, is ſeen near the landing-place, from which the iſland probably took its name: the cave is about three quarters of a mile from the beach; the path leading to it lies through a valley; the hills on either ſide beautifully clothed, and, except when interrupted by the dove calling to her abſent mate, a ſolemn ſtillneſs prevails; the mind is fitted for contemplating the approaching ſcene.

The cave is formed in a hill of ſtone; its maſſy roof is ſupported by rows of columns regularly diſpoſed, but of an order different from any in uſe with us *; gigantic figures, in relief, are obſerved on the walls; theſe as well as the columns are ſhaped in the ſolid rock, and by artiſts it would appear poſſeſſed of ſome ability, unqueſtionably of aſtoniſhing perſeverance. Several of the columns have been levelled, and the figures mutilated, as I am informed, by the *Portugueſe,* who were at the trouble (and no ſmall one) of dragging cannon up the hill, for the better execution of this exploit.—Deſtructive Superſtition

* See the ſketch of one of the pillars.

ſeeks not for merit; ſhe commits to the flames and to deſtruction, members of a community moſt valuable, and ſtructures doing honour to human ability!

The wall at the upper end of the cave is crowded with ſculpture; the attention is firſt arreſted by a grand buſt, repreſenting a being with three heads; the middle face is preſented full, and expreſſes a dignified compoſure; the head and neck ſplendidly covered with ornaments. The face on the left is in profile, and the head-dreſs rich; in one of the hands is a flower, in the other a fruit reſembling a pomegranate; a ring, like that worn by the *Hindus* at preſent, is obſerved on one of the wriſts; the expreſſion of the countenance by no means unpleaſant. Different is the head on the right; the face is in profile, the forehead projects, the eyes ſtare; ſnakes ſupply the place of hair, and the repreſentation of a human ſkull is conſpicuous on the covering of the head; one hand graſps a monſtrous *Cobra de Capella* (the hooded ſnake) the other a ſmaller; the whole together calculated to ſtrike terror into the beholder. The height of this buſt is about *eighteen* feet, and the breadth of the middle face about *four*; but the annexed drawing of this piece of ſculpture will give a better idea of it perhaps than words.

Each ſide of this niche is ſupported by a gigantic figure leaning on a dwarf, as in the drawing.

A niche of conſiderable dimenſions, and crowded with figures, on either ſide the former; in the middle of the niche, on the right, ſtands a gigantic figure, apparently female, but with *one breaſt* only. This figure has four arms, the foremoſt right hand is leaning on the head of a bull, the other graſps a *Cobra de Capella*, while a circular ſhield is obſerved in the inner left hand; the head is richly ornamented; on the right

ſtands a male, bearing a pronged inſtrument, reſembling a trident; on the left is a female, holding a mace or ſceptre; near the principal is a beautiful youth on an elephant; above this is a figure with four heads, ſupported by ſwans or geeſe; and oppoſite is a male with four arms, mounted on the ſhoulders of another, having a ſceptre in one of the hands. At the top of the niche ſmall figures in different attitudes are obſerved, ſeemingly ſupported by clouds.

The moſt conſpicuous of the group on the niche to the left, is a male near ſeventeen feet in height, with four arms; on the left ſtands a female about fifteen feet high. The ſame circular rings worn by the preſent *Hindu* women, are obſerved on the legs and wriſts of this figure; the hair bears a like correſpondence in the mode of putting it up; the countenance is peculiarly ſoft, and expreſſive of gentleneſs. In the back ground, a figure with four heads, ſupported by birds, and one with four arms on the ſhoulders of another, are alſo obſerved. Several ſmaller figures in attendance: one with the right knee bent to the ground, in the attitude of addreſſing the principal, bears a creſe, exactly reſembling that in preſent uſe. The heads of moſt of the ſmall male figures have a whimſical appearance, being covered with an exact reſemblance of our wigs.

On each ſide of theſe groups is a ſmall dark room, ſacred in ancient times perhaps to all but the unpolluted *Bráhmen*; but bats, ſpiders, ſcorpions, and ſnakes, are now in the poſſeſſion.

Left of the laſt deſcribed group, and nearer the ſide of the cave, is another: a male is obſerved in the action of leading a female towards a majeſtic figure ſeated in the corner of the niche, his head covered like our judges on the bench; the countenance and

attitude of the female highly expreſſive of modeſty, and a timid reluctance: a male behind urges her forward. Several ſmaller figures compoſe this group.

Curious it is to obſerve all the female figures have ornaments round the wriſts and legs, like thoſe worn by the *Hindu* women at preſent, while the males bearing the ſame correſpondence, have ornaments round the wriſts only.

Oppoſite the laſt niche, and fifty feet nearer the entrance, is another of equal dimenſions, incloſing a figure that forcibly arreſts the attention: it is a gigantic half-length of a male with eight arms; round one of the left arms a belt, compoſed of human heads, is ſeen; a right hand graſps a ſword uplifted to ſever a figure, ſeemingly kneeling (but too much mutilated to diſtinguiſh it properly) on a block, held in the correſpondent left hand; a *Cobra de Capella* riſes under one arm; among the ſingular decorations of the head, a human ſkull is obſerved: above are ſeveral ſmall figures, repreſented in diſtreſs and pain. Many of the figures mutilated, as is the principal, whoſe aſpect poſſeſſes a great degree of unrelenting fierceneſs.

Croſſing to the other ſide of the cave, near one of the ſmall rooms, before mentioned, a male ſitting as the people of this country do at preſent, is obſerved; a female in the ſame poſture on his left, with an attendant on either ſide: at the feet of the male is the figure of a bull couchant; and in each corner of the niche ſtands a gigantic guard. Oppoſite is a correſpondent niche: the figures being a good deal mutilated, and the ſituation dark, prevent theſe being properly diſcriminated; a ſitting male figure, having an attendant on either hand, is however moſt eaſily perceived.

A niche filled with figures, greatly defaced is observed on each side the entrance. On one side is a male that had eight arms, which are all destroyed: in the back part is the figure with four arms, supported by birds; and the other figure with four heads, whimsically elevated. A large sitting figure is the principal in the opposite niche; a horse and rider in the back ground; the former caparisoned according to the present mode in this country.

On the left side and half way up the cave, is an apartment about thirty feet square, enclosing the *Lingam*; an entrance on the four sides; and each side of either entrance is supported by a figure seventeen feet in height, each figure ornamented differently.

The part of this surprising monument of human skill and perseverance hitherto described, is generally called *the Great Cave*; its length is 135 feet, and breadth nearly the same. A plan accompanies this account, which, however, I cannot venture to pronounce perfectly correct, having mislaid a memorandum of *particular* parts which were deduced, and with sufficient correctness perhaps from the *general* measures preserved. But there are compartments on both sides, separated from the great cave, by large fragments of rock and loose earth, heretofore probably a part of the roof. That on the right is spacious, and contains several pieces of sculpture: the most remarkable is a large figure, the body human, but the head that of an elephant. The lingam is also enclosed here. Above each, of a line of figures standing in a dark situation, is a piece of sculpture, pointed out to me as an inscription: however (with the assistance of a torch) I found one an exact copy of the other, and with little resemblance of characters.

The compartment on the other side contains several sculptures, and among the rest, a figure with an

elephant's head and human body. A deep cavity in the rock hereabout contains excellent water, which, being ſheltered from the influence of the ſun, is always cool, and deſervedly held in eſtimation by thoſe whom curioſity leads here through a ſcorching atmoſphere. A traditional account of the extent of this cavity, and the communication of its waters by ſubterraneous paſſages, with others, very diſtant, was given me by a native of the iſland; which would make a conſiderable figure in the hands of a poet.

Gigantic as the figures are, the mind is not diſagreeably moved on viewing them: a certain indication of the harmony of the proportions. Having meaſured three or four, and examined the proportions by the ſcale we allow the moſt correct, I found many ſtood even this teſt, while the diſagreements were not equal to what are met with every day in people whom we think by no means ill proportioned.

The iſland wherein theſe curious remains of antiquity are ſituated, is about five miles and a half from *Bombay*, in an eaſterly direction; its circumference cannot be more than five miles: a neat village near the landing-place contains all its inhabitants, whom, incluſive of women and children, number about one hundred. Their anceſtors, they tell you, having been improperly treated by the *Portugueſe*, fled from the oppoſite iſland of *Salſette* hither, cultivating rice, and rearing goats for their ſupport. In the ſame humble road do they continue. The iſlanders have no boat; they cut wood from the adjoining hills, which the purchaſers remove in boats of their own; they are under our protection, and pay about fifty-ſix pounds annually to the government; the ſurplus revenue furniſhes their ſimple clothing. By perſevering in this humble path, theſe harmleſs people continue to re-

joice in tranquillity under their banyan-tree. The cave, they tell you, was formed by the Gods: and this is all they pretend to know of the matter.

Various have been, and are to this day, the conjectures respecting the *Elephanta Cave*. Those who attempt to deduce its origin from the *Egyptians*, from the *Jews*, or from *Alexander the Great*, appear to me, with due deference, to give themselves much unnecessary trouble; which I shall further endeavour to shew as briefly as the subject will admit of, though at the same time it must be observed, that resembling features are not wanting in the case of the *Egyptians* and of the *Jews*, to lead towards such deductions; but these resemblances strike me as tending to the elucidation of a more interesting hypothesis, *viz.* That the systems of those people were copies of an original, found in this part of the world.

The striking resemblance in several particulars of the figures in the cave to the present *Hindu* race, would induce those who from history, as well as from observation, have reason to believe they have preserved the same customs from time immemorial, to imagine the ancestors of these people its fabricators; but those who are in a small degree acquainted with their *mythology*, will be persuaded of it; nor is a much greater extent of knowledge requisite to enable us to discover it to be a temple dedicated principally to *Siva*, the *destroyer* or *changer*.

The *bust* is doubtless a personification of the three grand *Hindu* attributes of that *Being* for *whom* the ancient *Hindus* entertained the most profound veneration, and of *whom* they had the most sublime conceptions. The middle head represents *Brahma*, or the creative attribute; that on the left, *Vishnu*, or the preserving; and the head on the right, *Siva*, or the destructive or changing attribute.

The figure with *one breaſt* has been thought by moſt to repreſent an *Amazon*; it however appears to me a repreſentation of the *conſort of Siva*, exhibiting the active power of her lord; not only as *Bawani*, or courage, but as *Iſani*, or the Goddeſs of Nature, conſidered as male and female, and preſiding over generation, and alſo as *Durga*. Here we find the bull of *Iſwara* (one of *Siva*'s names) and the figure bearing his triſule, or trident. The beautiful figure on the elephant is, I imagine, *Cama*, or the *Hindu* God of Love; the figure with *four heads*, ſupported by *birds*, is a repreſentation of *Brahma*; and that with *four arms*, mounted on the ſhoulders of another, is *Viſhnu*.

The two principal figures in the niche to the left, repreſent, perhaps, *Siva* and his Goddeſs as *Parvati*. Here, as before, we obſerve *Brahma* and *Viſhnu* in the *back ground*.

The terrific figure with eight arms, has been much talked of; ſome will have it to repreſent *Solomon*, threatening to divide the harlot's child; others, with more reaſon on their ſide, ſuppoſe it to repreſent the tyrant *Canſa*, attempting the life of the infant god *Criſhna*, when foſtered by the herdſman *Ananda*. To me, the third attribute, or the *deſtroyer in action*, appears too well repreſented to be miſtaken. The diſtant ſcene, where the ſmaller figures appear in diſtreſs and pain, is perhaps the infernal regions. The figure about to be deſtroyed, does not ſeem to me an infant, but a full grown perſon; if, indeed, the deſtroyer was of the human ſize, the figure in queſtion would bear the proper proportion as an infant; but as he is of enormous magnitude, a human *being*, full grown, would appear but an infant by the ſide of him; and thus it is, I imagine, that people have been deceived: a caſe by no means uncommon in circumſtances like the preſent.

The ſitting male and female figures, having a bull couching at the feet of the former, are *Siva* and his Goddeſs; and thus are they repreſented in the pagodas of the preſent day.

No perſon can miſtake the figure with the human body and elephant's head for any other than *Ganéſa*, the *Hindu* God of Wiſdom, and the firſt-born of *Siva*; and thus is he repreſented at preſent.

From what has been advanced, it will appear incontestible, I imagine, that this is a *Hindu temple*; whence the *Lingam* is a teſtimony ſufficient of *Siva*'s having preſided here, without the other evidences which the intelligent in the *Hindu* mythology will have diſcovered in the courſe of this account.

To deduce the æra of the fabrication of this ſtructure is not ſo eaſy a taſk; but it was, no doubt, poſterior to the great ſchiſm in the *Hindu* religion, which, according to the *Puranas*, I learn, happened at a period coeval with our date of the creation. Be this as it may, we have accounts of powerful princes, who ruled this part of the country of a later date, particularly of one who uſurped the government in the ninetieth year of the *Chriſtian* æra, famed for a paſſion for architecture. Many worſe hypotheſis have been, than one which might be formed of his having founded the cave; but I am led to imagine, no certain concluſions on this dark ſubject could be drawn from the ſources of information open at preſent.

XXXII.

AN ACCOUNT OF THE PRESENT STATE OF DELHI.

BY LIEUTENANT W. FRANKLIN.

THE once celebrated city of *Delhi*, the capital of *Mussulman* sovereignty in *Hindostan*, and, in more early times, the seat of *Hindu* dominion over northern *India*, has employed the pen of many different authors, *Asiatic* and *European*; though of the latter in a less degree than might have been expected.

The following account of the present state of this ancient city, is extracted from a journal of observations made during an official tour through the *Dovab* and the adjacent districts, in company with Captain *Reynolds*, of the *Bombay* establishment, appointed by the *Bengal* government to survey that part of the country in the year 1793.

It cannot be supposed to contain much new information on things already described by others; but, as a faithful statement of the actual condition of the once flourishing metropolis of a great kingdom now in ruins, it may be acceptable; and in this hope it is offered, with deference to the Society; who will judge whether it be deserving of more general dif-

fusion by publication with their more important researches.

The extent of the ruins of old *Delhi* cannot, I suppose, be less than a circumference of twenty miles, reckoning from the gardens of *Shalimar*, on the north-west, to the *Cuttub Minar* on the south-east; and proceeding from thence along the heart of the old city by way of the mausoleum of *Nizam u-deen*, on which stands *Humaioon*'s tomb, and the old fort of *Delhi* on the banks of the *Jumna*, to the *Ajmere* gate of *Shah Jehanabad*.

The environs to the north-west are crowded with the remains of spacious gardens and country-houses of the nobility, which were formerly abundandtly supplied with water by means of the noble canal dug by *Ali Mirdan Khan*, and which formerly extended from above *Paniput* quite down to *Delhi*, where it joined the *Jumna*; fertilizing in its course a track of more than ninety miles in length, and bestowing comfort and affluence on those who lived within its extent. This canal, as it ran through the suburbs of *Mogul Parah*, nearly three miles in length, was about twenty-five feet deep, and about as much in breadth, cut from the solid stone-quarry, on each side, from which most of the houses in the neighbourhood have been built. It had small bridges erected over it at different places, some of which communicated with the garden-houses of the nobility.

In the year of the *Hagiree* 1041 (A. C. 1631-2) the Emperor *Shah-Jehan* founded the present city and palace of *Shah-Jehanabad*, which he made his capital during the remainder of his reign. The new city of *Shah-Jehanabad* lies on the western bank of the *Jumna*, in latitude 28° 36′ north. The city is about seven miles in circumference, and is surrounded on

three ſides by a wall of brick and ſtone: a parapet runs along the whole, with loop-holes for muſquetry; but there are no cannon planted on the ramparts. The city has ſeven gates; viz. *Lahore*-gate, *Ajmere*-gate, *Turkoman*-gate, *Delhi*-gate, *Moor*-gate, *Cabul* gate, and *Caſhmere*-gate; all of which are built of free-ſtone, and have handſome arched entrances of ſtone, where the guards of the city keep watch. Near the *Ajmere*-gate is a *Madriſſa*, or college, erected by *Ghazi-u-deen Khan*, nephew of *Nizam-ul-Moolluck*: it is built of red ſtone, and ſituated at the centre of a ſpacious quadrangle, with a ſtone fountain. At the upper end of the area is a handſome moſque built of red ſtone, inlaid with white marble. The apartments for the ſtudents are on the ſides of the ſquare, divided into ſeparate chambers, which are ſmall but commodious. The tomb of *Ghazi* is in the corner of the ſquare, ſurrounded by a ſhrine of white marble, pierced with lattice-work. The college is now ſhut up, and without inhabitants. In the neighbourhood of the *Cabul*-gate is a garden, called *Tees Huzzari Baug*, in which is the tomb of the queen *Malka Zemani*, wife of the emperor *Mohummud Shah*: a marble tablet, placed at the head of the grave, is engraved with ſome *Perſian* couplets, informing us of the date of her death, which happened five years ſince, *ann. Hagiree* 1203. Near this tomb is another, of the princeſs *Zeebul Niſſah Beegum*, daughter of *Aurungzebe*. On a riſing ground near this garden, from whence there is a fine proſpect of *Shah Jehanabad*, are two broken columns of brown granate, eight feet high, and two and a half in breadth, on which are inſcriptions in an ancient character.

Within the city of new *Delhi* are the remains of many ſplendid palaces, belonging to the great Omrahs of the empire. Among the largeſt are thoſe of *Kummer-u-deen Khan*, *Vizier* to *Mohummud Shah*;

Ali Mirdan Khan, the *Perſian*; the *Nabob Ghazi-u-deen Khan*; *Sefdur Jung*; the garden of *Coodſeah Begum*, mother to *Mohummud Shah*; the palace of *Sadut Khan*; and that of *Sultan Darah Shekoah*. All theſe palaces are ſurrounded with high walls, and take up a conſiderable ſpace of ground. Their entrances are through lofty arched gateways of brick and ſtone, at the top of which are the galleries for muſic: before each is a ſpacious court-yard for the elephants, horſes, and attendants of the viſitors. Each palace has likewiſe a *mahal*, or ſeraglio, adjoining; which is ſeparated from the *Dewan Khana* by a partition-wall, and communicates by means of private paſſages. All of them had gardens with capacious ſtone-reſervoirs and fountains in the centre; an ample terrace extended round the whole of each particular palace; and within the walls were houſes and apartments for ſervants and followers of every deſcription, beſides ſtabling for horſes, *Feel Khanas*, and every thing belonging to a nobleman's ſuit. Each palace was likewiſe provided with a handſome ſet of baths, and a *Teh Khana* under ground. The baths of *Sadut Khan* are a ſet of beautiful rooms, paved and lined with white marble: they conſiſt of five diſtinct apartments, into which light is admitted by glazed windows from the top of the domes. *Sufder Jung*'s *Teh Khana* conſiſts of a ſet of apartments, built in a light delicate manner; one long room, in which is a marble reſervoir, the whole length; and a ſmall room, raiſed and balluſtraded on each ſide, both faced throughout with white marble.

Shah Jehanabad is alſo adorned with many fine moſques, ſeveral of which are ſtill in perfect beauty and repair. The following are moſt worthy of being deſcribed: the firſt, the *Jama Musjed*, or great cathedral. This moſque is ſituated about a quarter of a mile from the royal palace; the foundation of it was

laid upon a rocky eminence, named *Jujula Pahar*, and has been ſcarped on purpoſe. The aſcent to it is by a flight of ſtone ſteps, thirty-five in number, through a handſome gateway of red ſtone. The doors of this gateway are covered throughout with plates of wrought braſs, which Mr. *Bernier* imagined to be copper. The terrace on which the moſque is ſituated, is a ſquare of about fourteen hundred yards of red ſtone; in the centre is a fountain lined with marble, for the purpoſe of performing the neceſſary ablutions previous to prayer. An arched colonade of red ſtone ſurrounds the whole of the terrace, which is adorned with octagon pavilions at convenient diſtances, for ſitting in. The moſque is of an oblong form, two hundred and ſixty-one feet in length, ſurrounded at top by three magnificent domes of white marble, interſected with black ſtripes, and flanked by two *minarets* of black marble and red ſtone alternately, riſing to the height of a hundred and thirty feet. Each of theſe *minarets* has three projecting galleries of white marble; and their ſummits are crowned with light octagon pavilions of the ſame. The whole front of the *Jama Musjed* is faced with large ſlabs of beautiful white marble; and along the cornice are ten compartments, four feet long, and two and a half broad, which are inlaid with inſcriptions in black marble, in the *Nuſki* character, and are ſaid to contain great part, if not the whole, of the *Koran*. The inſide of the moſque is paved throughout with large flags of white marble, decorated with a black border; and is wonderfully beautiful and delicate: the flags are about three feet in length by one and a half broad. The walls and roof are lined with plain white marble; and near the *Kibla* is a handſome *taak*, or niche, adorned with a profuſion of frieze-work. Cloſe to this is a *mimber*, or pulpit, of marble, having an aſcent of four ſteps, and balluſtraded. The aſcent to the *minarets* is by a winding ſtair-caſe of a hundred and

thirty ſteps of red ſtone; and at the top you have a noble view of the king's palace, and the whole of the *Cuttub Minar*, the *Kurran Minar*, *Humaioon*'s tomb, the palace of *Feroſe Shah*, the fort of old *Delhi*, and the fort of *Loni*, on the oppoſite ſide of the *Jumna*. The domes are crowned with culliſes, richly gilt, and preſent a glittering appearance from a diſtance. This moſque was begun by *Shah Jehan*, in the fourth year of his reign, and completed in the tenth: the expences of its erection amounted to ten lacks of rupees; and it is in every reſpect worthy of being the grand cathedral of the empire of *Indoſtan*.

Not far from the palace is the moſque of *Roſhun-a-Dowlah*, rendered memorable to the *Delhians* for being the place where *Nadir Shah* ſaw the maſſacre of the unfortunate inhabitants. The cauſe aſſigned by hiſtorians for this inhuman act is, that a ſedition broke out in the great market, in which two thouſand *Perſians* were ſlain. *Nadir*, on hearing of the tumult, marched out of the fort at night with a ſmall force to the *Musjed* of *Roſhun-a-Dowlah*; where he was fired upon in the morning from a neighbouring terrace, and an officer killed cloſe by his ſide. He inſtantly ordered an indiſcriminate ſlaughter of the inhabitants; and his ſquadrons of cavalry pouring through the ſtreets, before the afternoon put to death a hundred thouſand perſons of all deſcriptions. "The King of *Perſia*," ſays the tranſlator of *Feriſhta*, "ſat, during the dreadful ſcene, in the *Musjed* of *Roſhun-a-Dowlah*. None but ſlaves durſt come near him, for his countenance was dark and terrible. At length the unfortunate Emperor, attended by a number of his chief Omrahs, ventured to approach him with downcaſt eyes. The Omrahs who preceded *Mohummud*, bowed down their foreheads to the ground. *Nadir Shah* ſternly aſked them what they

"wanted: they cried out with one voice, Spare the "city. *Mohummud* ſaid not a word, but tears flowed "faſt from his eyes: the tyrant, for once touched "with pity, ſheathed his ſword, and ſaid, For the "ſake of the prince *Mohummud*, I forgive." Since this dreadful maſſacre this quarter of *Delhi* has been but very thinly inhabited. The moſque of *Roſhun-a-Dowlah* is ſituated at the entrance of the *Chandney Choke*, or market; it is built of red ſtone, of the common ſize, and ſurmounted by three domes richly gilt.

Zeenul-al Muſſajid, or the ornament of moſques, is on the banks of the *Jumna*, and was erected by a daughter of *Aurungzebe*, of the name of *Zeenut al Niſſáh*. It is of red ſtone, with inlayings of marble; and has a ſpacious terrace in front of it, with a capacious reſervoir faced with marble. The princeſs who built it, having declined entering into the marriage ſtate, laid out a large ſum of money in the above moſque, and on completing it, ſhe built a ſmall ſepulchre of white marble, ſurrounded by a wall of the ſame, in the weſt corner of the terrace. In this tomb ſhe was buried in the year of the *Hegira* 1122, correſponding with the year of *Chriſt* 1710. There were formerly lands allotted for the ſupport and repairs of this place, amounting to a lack of rupees *per annum*; but they all have been confiſcated during the troubles this city has undergone. Excluſive of the moſque above deſcribed, there are in *Shah Jehanabad* and its environs above forty others; but as moſt of them are of inferior ſize, and all of them of the ſame faſhion, it is unneceſſary to preſent any further detail.

The modern city of *Shah Jehanabad* is rebuilt, and contains many good houſes, chiefly of brick. The ſtreets are in general narrow, as is uſual in moſt of the large cities in *Aſia*; but there were formerly two

very noble ſtreets; the firſt leading from the palace-gate through the city to the *Delhi*-gate, in a direction north and ſouth. This ſtreet was broad and ſpacious, having handſome houſes on each ſide of the way, and merchants ſhops well furniſhed with the richeſt articles of all kinds. *Shah Jehan* cauſed an aqueduct to be made of red ſtone, which conveyed the water along the whole length of the ſtreet, and from thence into the royal gardens, by means of a reſervoir under ground. Some remains of the aqueduct are ſtill to be ſeen; but it is choked up in moſt parts with rubbiſh. The ſecond grand ſtreet was likewiſe from the palace to the *Lahor*-gate, lying eaſt and weſt: it was equal in many reſpects to the former; but in both of them the inhabitants have ſpoiled their appearance, by running a line of houſes down the centre, and acroſs the ſtreets in other places, ſo that it is with difficulty a perſon can diſcover their former ſituation without a narrow inſpection. The bazars in *Delhi* are but indifferently furniſhed at preſent, and the population of the city miſerably reduced of late years: the *Chandney Choke* is the beſt furniſhed bazar in the city, though the commerce is very trifling. Cotton cloths are ſtill manufactured, and the inhabitants export indigo. Their chief imports are by means of the northern caravans which come once a year, and bring with them from *Cabul* and *Caſhmere*, ſhawls, fruit and horſes: the two former articles are procurable in *Delhi* at a reaſonable rate. There is alſo a manufacture at *Delhi* for beedree hooka bottoms. The cultivation about the city is principally on the banks of the *Jumna*, where it is very good; the neighbourhood produces corn and rice, millet and indigo. The limes are very large and fine. Precious ſtones likewiſe are to be had at *Delhi*, of very good quality, particularly the large red and black cornelians; and peerozas are ſold in the ſeveral bazars.

The city is divided into thirty-ſix mohauls or quarters, each of which is named either after the particular Omrah who reſided there, or from ſome local circumſtances relative to the place. It appears that the modern city of *Shah Jehanabad* has been built principally upon two rocky eminences; the one where the *Jama Musjid* is ſituated, named *Jujula Pahar*: and the other, the quarter of the oil-ſellers, called *Bejula Pahar:* from both of theſe eminences you have a commanding view of the remainder of the city. Ancient *Delhi* is ſaid by hiſtorians to have been directed by Rajah *Delu*, who reigned in *Hindoſtan* prior to the invaſion of *Alexander the Great*; others affirm it to have been built by Rajah *Pettourah*, who flouriſhed in a much later period. It is called in *Sanſcrit*, *Indraput*, or the abode of *Indra*, one of the *Hindu* deities; and it is alſo thus diſtinguiſhed in the royal diplomas of the chancery-office. Whether the city be of the antiquity reported, it is difficult to determine: but this much is certain, that the vaſt quantity of buildings which are to be found in the environs for upwards of twenty miles in extent, as well as their grandeur and ſtyle of architecture, prove it to have once been a rich, flouriſhing, and populous city.

On the 11th of *March* we were preſented to the King *Shah Allum*. After entering the palace, we were carried to the *Dewaun Khanah*, or hall of audience for the nobility, in the middle of which was a throne raiſed about a foot and a half from the ground. In the centre of this elevation was placed a chair of crimſon velvet, bound with gold claſps, and over the whole was thrown an embroidered covering of gold and ſilver thread: a handſome *Samianah*, ſupported by four pillars incruſted with ſilver, was placed over the chair of ſtate. The King at this time was in the *Tuſbeah Khanah:* an apartment in which he generally ſits. On paſſing a ſkreen of *Indian* connaughts, we

proceeded to the front of the *Tuſbeah Khanah*, and being arrived in the preſence of the King, each of us made three obeiſances in turn, by throwing down the right hand pretty low, and afterwards raiſing it to the forehead; we then went up to the Muſnud on which his Majeſty was ſitting, and preſented our nuzzers on white handkerchiefs, each of our names being announced at the time we offered them: the King received the whole, and gave the nuzzers to *Mirza Akber Shah*, and two other princes who ſat on his left hand. We then went back, with our faces towards the preſence, made the ſame obeiſance as before, and returned again to the Muſnud. After a ſlight converſation, we were directed to go without the incloſure, and put on the *Khelauts* which his Majeſty ordered for us; they conſiſted of light *India* dreſſes; a turban, jammah, and kummerbund, all cotton, with ſmall gold ſprigs. On being clothed in theſe dreſſes, we again returned to the *Tusbeah Khanah*, and after a few minutes ſtay, previous to which Capt. *Reynolds* received a ſword from the King, we had our diſmiſſion; and ſome ſervants were ordered to attend us in viewing the palace.

The preſent King, *Shah Allum*, is ſeventy-two years of age; of a tall commanding ſtature, and dark complexion; his deportment was dignified, and not at all diminiſhed by his want of ſight, though he has ſuffered that cruel misfortune above five years. The marks of age are very ſtrongly diſcernible in his countenance: his beard is ſhort and white. His Majeſty appeared at our introduction to be in good ſpirits; ſaid he was happy at our arrival; and deſired we would viſit his palace and the fort of *Selim Ghur*.—His Majeſty's dreſs on this occaſion was a rich kheem-khaub; and he was ſupported by pillows of the ſame materials.

I imagined I could obferve in his afpect a thoughtfulnefs, as if fufficiently acquainted with his degradation, and the recollection of his former ftate.

The palace of the royal family of *Timur* was erected by the Emperor *Shah Jehan* at the time he finifhed the new city; it is fituated on the weftern bank of the *Jumna*, and furrounded on three fides by a wall of red ftone. I fuppofe the circumference of the whole to be about a mile. The two ftone figures, mentioned by *Bernier*, at the entrance of the palace, which reprefented the Rajah of *Chitore* and his brother *Pottah*, feated on two elephants of ftone, are not now to be feen; they were removed by order of *Aurungzebe*, as favouring too much of idolatry; and he enclofed the place where they ftood with a fkreen of red ftone, which has disfigured the entrance of the palace. The firft object that attracts the attention after entering the palace, is the *Dewaun Aum*, or public hall of audience, for all defcriptions of people. It is fituated at the upper end of a fpacious fquare, and is a noble building, but at prefent much in decay. On each fide of the *Dewaun Aum*, and all round this fquare, are apartments of two ftories high, the walls and front of which, in the times of the fplendor of the empire, were adorned with a profufion of the richeft tapeftry, velvets, and filks; the nobles vying with each other in rendering them the moft magnificent, efpecially on feftivals and days of public rejoicings, when they prefented a grand fight. Thefe decorations have however been long fince laid afide, and nothing but the bare walls remained. From the *Dewaun Aum* we proceeded through another handfome gateway to the *Dewaun Khafs*, before mentioned. The building is fituated at the upper end of a fpacious fquare, and elevated upon a marble terrace, about four feet high. The *Dewaun Khafs* in former times has been adorned with exceffive magnificence, and though ftripped and

plundered by various invaders, ſtill retains ſufficient beauty to render it admired. I judge the building to be a hundred and fifty feet in length, by forty in breadth. The roof is flat, ſupported by a great many columns of fine white marble, which have been richly adorned with inlaid flower-work of beautiful ſtones: the cornices and borders have been decorated with a great quantity of frieze and ſculptured work. The ceiling was formerly incruſted with a work of rich foliage of ſilver throughout the whole extent, which has been long ſince taken off and carried away. The delicacy of the inlaying in the compartments of the walls is much to be admired; and it is a matter of heartfelt regret to ſee the barbarous ravages that have been made in picking out the different cornelians, and breaking the marble by violence. Around the interior of the *Dewaun Khaſs*, in the cornice, are the following lines, engraved in letters of gold upon a white marble ground:—

"If there be a paradiſe upon earth, this is it—'tis this, 'tis this." The terrace on which the *Dewaun Khanah* is built is compoſed of large beautiful ſlabs of white marble; and the building is crowned at top with four pavilions or cupalos, of the ſame materials.

The royal baths, built by *Shah Jehan*, are ſituated a little to the northward of the *Dewaun Khaſs*, and conſiſt of three very large apartments ſurmounted by white marble domes. The inſide of the baths is lined, about two-thirds of the way up, with marble, having a beautiful border of flower-worked cornelians and other precious ſtones, executed with taſte. The floors are paved throughout with marble in large ſlabs, and there is a fountain in the center of each, with many pipes: large reſervoirs of marble, about four feet deep, are placed in different parts of the walls; the light is admitted from the roof by win-

dows of party-coloured glaſſes; and capacious ſtones, with iron gratings, are placed underneath each ſeparate apartment. There is a noble moſque adjoining, entirely of white marble, and made after the faſhion deſcribed above. In the *Shah Baug*, or the royal gardens, is a very large octagon-room, which looks towards the river *Jumna*. This room is called *Shah Boorj*, or the royal tower; it is lined with marble; and from the window of it the late heir apparent, *Mirza Juwan Bukht*, made his eſcape in the year 1784, when he fled to *Lucknow*: he deſcended by means of a ladder made with turbans; and as the height is inconſiderable, effected it with eaſe. A great part of this noble palace has ſuffered very much by the deſtructive ravages of the late invaders. The *Rohillas* in particular, who were introduced by *Gholaum Kauder*, have ſtripped many of the rooms of their marble ornaments and pavements, and have even picked out the ſtones from the borders of many of the floorings. Adjoining is the fortreſs of *Selim Ghur*, which you reach by a ſtone-bridge, built over an arm of the *Jumna*. The fort is now entirely in ruins. At the eaſtern end of it we were ſhewn the ſally-port, from which *Golaum Kauder Khan* made his eſcape with all his retinue, when the place was beſieged by the *Mahrattas* in 1788. The river *Jumna* running directly underneath this baſtion, the tyrant croſſed it immediately, and fled to *Meerut*, in the *Dooab*.

The *Gentur Munter*, or obſervatory, in the vicinity of *Delhi*, has been deſcribed by former travellers. It was built in the third year of the reign of *Mohummed Shah*, by the Rajah *Jeyſing*, who was aſſiſted by many perſons celebrated for their ſcience in aſtronomy from *Perſia*, *India*, and *Europe*; but died before the work was completed; and it has ſince been plundered, and almoſt deſtroyed by the *Jeits*, under *Juwaher Sing*.

I will only add a ſhort account of the royal gardens of *Shalimar.* Theſe gardens, made by the Emperor *Shah Jehan*, were begun in the fourth year of his reign, and finiſhed in the thirteenth; on which occaſion, according to Colonel *Dow*, the Emperor gave a grand feſtival to his court. Theſe gardens were laid out with admirable taſte, and coſt the enormous ſum of a million ſterling: at preſent their appearance does not give cauſe to ſuppoſe ſuch an immenſe ſum has been laid out upon them; but great part of the moſt valuable and coſtly materials have been carried away. The entrance to them is through a gate-way of brick; and a canal, lined with ſtone, having walks on each ſide with a brick-pavement, leads up to the *Dewaun Khanah*, or hall of audience; moſt part of which is now fallen down: from thence, by a noble canal, having a fountain in the center, you proceed to the apartments of the *Haram*, which embrace a large extent of ground. In the front is an *Ivan*, or open hall, with adjoining apartments; the interior of which are decorated with a beautiful border of white and gold painting, upon a ground of the fineſt chunam. At the upper end of this *Ivan* was formerly a marble throne, raiſed about three feet from the ground; all of which is removed. On each ſide of this *Ivan*, incloſed by high walls, are the apartments of the *Haram*, ſome of which are built of red ſtone, and ſome of the brick faced with fine chunam, and decorated with paintings of flowers of various patterns. All theſe apartments have winding paſſages which communicate with each other, and the gardens adjoining by private doors. The extent of *Shalimar* does not appear to have been large: I ſuppoſe the gardens altogether are not above a mile in circumference. A high brick-wall runs around the whole, which is deſtroyed in many parts of it, and the extremities are flanked with octagon pavilions of red ſtone. The gardens ſtill abound with trees of a very large ſize, and very old. The proſpect

to the ſouthward of *Shalimar* towards *Delhi*, as far as the eye can reach, is covered with the remains of extenſive gardens, pavilions, moſques, and burying-places, all deſolate and in ruins. The environs of this once magnificent and celebrated city appear now nothing more than a ſhapeleſs heap of ruins; and the country round about is equally forlorn.

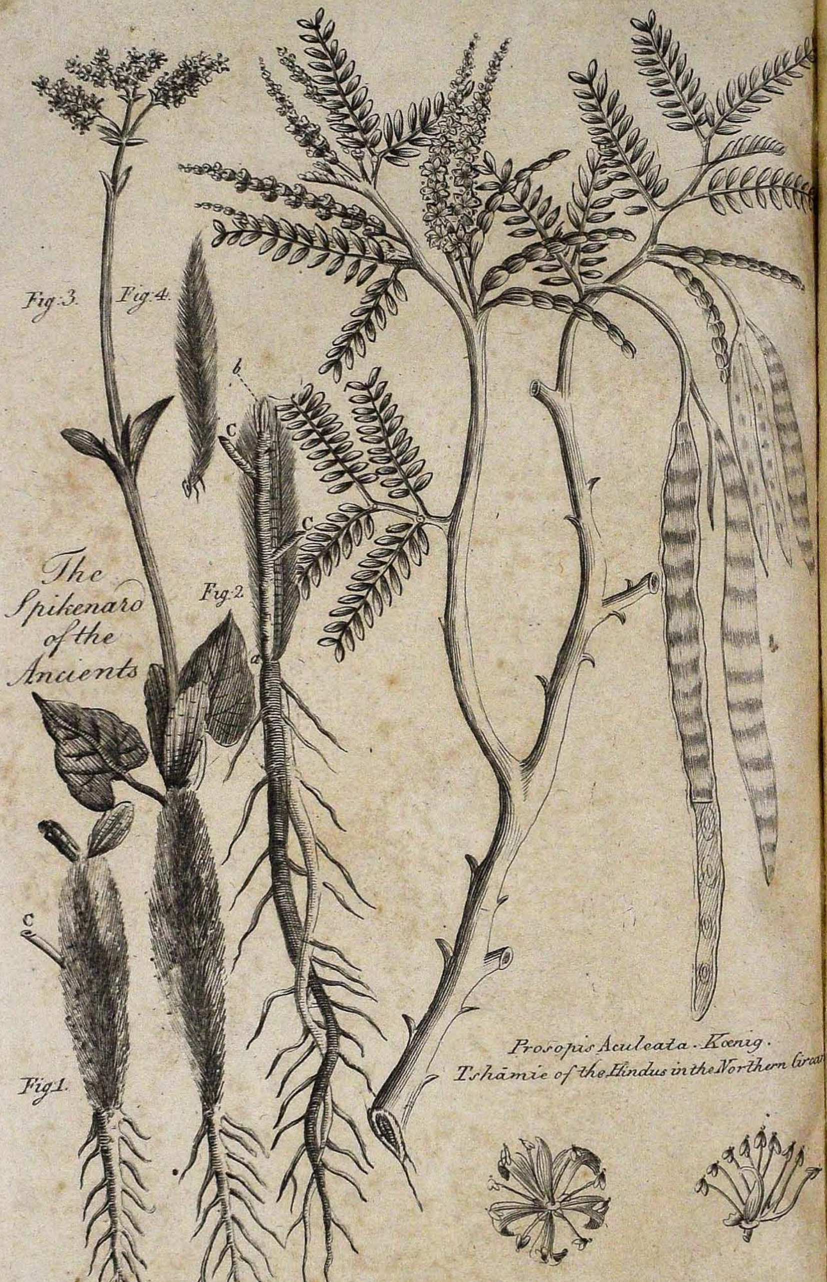


Fig. 3.
Fig. 4.
Fig. 2.
Fig. 1.
b
c
a
The Spikenard of the Ancients
Prosopis Aculeata. Kœnig.
Tshāmie of the Hindus in the Northern Circa

THE TANJORE MAHARAJA SERFOJI'S SARASWATI MAHAL. *

XXXIII.

BOTANICAL OBSERVATIONS

ON THE SPIKENARD OF THE ANTIENTS:

intended as a Supplement to the late Sir WILLIAM JONES's Papers on that Plant.

BY WILLIAM ROXBURGH, M. D.

VALERIANA JATAMANSI.

GENERIC CHARACTER.

FLOWERS triandrous, leaves entire, four-fold, the inner radical pair petioled, and cordate; the reſt ſmaller, ſeſſile, and ſub-lanceolate; ſeeds crowned with a pappus.

V. *Jatamanſi* of Sir *William Jones.* See *Aſiatic Reſearches*, vol. ii. page 405 and 417, and page 105 of this volume.

November 6th, 1794. I received from the Honourable *C. A. Bruce*, commiſſioner at *Coos-Beyhar*, two ſmall baſkets with plants of this valuable drug. He writes to me on the 27th *September* (ſo long had the plants been on the road) that he had, the day before, received them from the *Deb Rajah* of *Bootan*;

and further ſays, that the *Booteahs* know the plant by two names, *viz.* *Jatamanſi* and *Pampé*, or *Paumpé*.

I need ſcarce attempt to give any further hiſtory of this famous odoriferous plant than what is merely botanical; and that with a view to help to illuſtrate the learned diſſertations thereon, by the late Sir *William Jones*, in the 2d and 4th volumes of theſe Reſearches; and chiefly by pointing out the *part of the plant* known by the name *Indian Nard*, or *Spikenard:* a queſtion on which *Matheolus*, the commentator of *Dioſcorides*, beſtows a great deal of argument; *viz.* Whether the roots or ſtalks were the parts eſteemed for uſe? the teſtimony of the antients themſelves on this head being ambiguous. It is therefore neceſſary for thoſe who wiſh for a more particular account of it, to be acquainted with what that gentleman has publiſhed on the ſubject.

The plants now received, are growing in two ſmall baſkets of earth; in each baſket there appears above the earth between thirty and forty hairy ſpike-like bodies, but more juſtly compared to the tails of *Ermines*, or ſmall *Weaſels**; from the apex of each, or at leaſt of the greateſt part of them, there is a ſmooth lanceolate or lanceolate-oblong, three or five-nerved, ſhort-petioled, acute or obtuſe, ſlightly ſerrulate leaf or two ſhooting forth. Fig. 1, repreſents one of them in the above ſtate; and on gently removing the fibres or hairs which ſurround the ſhort petiols of theſe leaves, I find it conſiſts of numerous ſheaths, of which one, two, or three of the upper or interior ones

* The term ſpica, or ſpike, is not ſo ill applied to this ſubſtance as may be imagined; ſeveral of the Indian graſſes, well known to me, have ſpikes almoſt exactly reſembling a ſingle ſtraight piece of nardus: and when thoſe hairs (or flexible ariſta, like briſtles) are removed, *Pliny*'s words, "frutexradice pingui et craſſa," are by no means inapplicable. See fig. 2, from *a* to *b*.

are entire, and have their fibres connected by a light-brown coloured membranous fubftance, as at *b*; but in the lower exterior fheaths, where this connecting membrane is decayed, the more durable hair-like fibres remain diftinct, giving to the whole the appearance of an *Ermine*'s tail: this part, as well as the root, are evidently perennial*. The root itfelf (beginning at the furface of the earth where the fibrous envelope ends) is from three to twelve inches long, covered with a pretty thick light-brown coloured bark: from the main root, which is fometimes divided, there iffues feveral fmaller fibres. Fig. 2, is another plant with a long root; here the hair-like fheaths, beginning at *a*, are feparated from this, the perennial part of the ftem, and turned to the right fide; at the apex is feen the young fhoot, marked 6, which is not fo far advanced as at fig. 1; *c c c* fhow the remains of laft year's annual ftem. When the young fhoot is a little further advanced than in fig. 2, and not fo far as in fig. 1, they refemble the young convolute fhoots of monoco-

* The above defcribed perennial hairy portion of the plant, is clearly the *Indian* fpikenard of our fhops; but whether the nardus of the antients or not, I leave to better judges to determine; however, I believe few will doubt it after having read Sir *William Jones*'s Differtations thereon, and compared what he fays with the accompanying drawings of the perennial hairy part of the ftem of this plant, which are taken from the living plants immediately under my own eyes: the drawing of the herbaceous, or upper part of the plant, is out of the queftion in determining this point, and only refers to the place the plant bears in our botanical books. While writing the above, I defired an *Hindu* fervant to go and buy me from their apothecaries fhops a little *Jatamanfi*. Without faying more or lefs, he immediately went and brought me feveral pieces of the very identical drug I have been defcribing: a drawing of one of the pieces is reprefented at fig. 4, and agrees not only with thofe I have taken from the living plants, but alfo exceeding well with *Garcias ab Orta*'s figure of the nardus indica, which is to be found at page 129 of the fourth edition of *Clufius*'s *Latin* tranflations of his *Hiftory of Indian Drugs*, publifhed in 1693.

tyledonous plants, *June* 1795. The whole of the abovementioned plants have perished without producing flowers, notwithstanding every care that could possibly be taken of them. The principal figure in the drawing, marked fig. 3, and the following description, as well as the above definition, are therefore chiefly extracted from the engraving and description in the second volume of these Researches, and from the information communicated to me by Mr. *Burt*, the gentleman who had charge of the plants that flowered at *Gaya*, and who gave Sir *William Jones* the drawing and description thereof.

Description of the Plant.

Root, it is already described above.

Stem, lower part perennial, involved in fibrous sheaths, &c. as above described; the upper part herbaceous, suberect, simple, from six to twelve inches long.

Leaves four-fold, the lowermost pair of the four radical are opposite, sessile, oblong, forming, as it were, a two-valved spathe; the other pair are also opposite petioled, cordate, margins waved and pointed; those of the stem sessile and lanceolate; all are smooth on both sides.

Corymb terminal, first division trichotomous.

Bracts awled.

Calyx scarce any.

Corol one-petaled, funnel-shaped, tube somewhat gibbous. Border five-cleft.

Stamens, filaments three, project above the tube of the corol: anthers incumbent.

Pistil, germ beneath. Style erect, length of the tube. Stigma simple.

Pericarp, a single seed crowned with a pappus.

END OF THE FOURTH VOLUME.

AULD, Printer, Greville-street, London.